

Australian



Gliding



SKY SAILOR



In this Issue:



**A New Club's
Success Story**



**Malaysian Para-
motor Adventure**

Moyes

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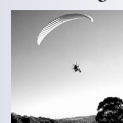
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Queensland State Comps

FRANK TURNER

The Queensland Soaring Association FAI Class Championships were hosted by the Kingaroy Soaring Club at Kingaroy from 29 September (practice day) to 6 October 2001. The weather was good with tasks being flown on six out of a possible seven days, no aircraft was damaged and a good time was had by all.

Thirty-two gliders flew in the comps and with pilot pairs competing in Standard, 15 Metre and 18 Metre Classes, some 39 pilots participated (including multiple pilots in Kingaroy's Duo Discus GKC).

There was a separate 18m Class, which is said to have been a first in Australia. The 18m Class comprised of Three Ventus IIs plus the Duo Discus, following adoption by the competition organisers of the new Nationals rule for eligibility for 18m Class. The Duo acquitted itself well, although its maximum wing loading of 43 kg/m^2 (not to mention the absence of flaps) puts it at somewhat of a disadvantage on strong days.

The entry list was considerably bolstered by the presence of a contingent of four New Zealand competitors – Grae Harrison, Bill Walker, Theo Neufeld and Roger Sparkes, as well as Mak Ichikawa from Japan and a goodly collection of (Aussie) Mexicans. Although only one glider self-launched, the four tugs launched the field within one hour every day. In addition to two conventional Pawnees, the tugs included Kingaroy's 180 HP Cessna 150 and the Autotug.

With the very dry conditions which had been prevailing in south-east Queensland, cloudbase generally was in the range of 8,000 to 10,000 ft. Thermals mostly averaged six to seven knots overall but many pilots experienced

some of 10kt or more. The wind direction was mainly light northerly, which generally means conditions are better to the north of the Bunya Mountains (40km south-west of Kingaroy) than to the south and west. So it proved to be. The tasksetters, capably lead by Hank Kaufmann, therefore tended to set tasks to the north. This resulted in some new or rarely used turnpoints being set including Tansey, Ban Ban Springs, Gayndah and Eidsvold. Most competitors reported that they enjoyed flying over the gently undulating terrain around these turnpoints (as one tends to from 8,000 or 9,000 ft).

There were, however, a couple of weaker days and the tasksetters experimented with two variations on Assigned Area Tasking to cater for the diverse range of aircraft performance and pilot experience. On two days, competitors were given the option of selecting their own turnpoints being one of two turnpoints to the north and one of two to the south-west, thus making a triangle on Kingaroy, with a minimum task time. Competitors who finished earlier than the minimum time (as several did), were scored as having taken the minimum time.

On the Thursday, a classical Assigned Area Task was set. The previous day had been lost due to eight-eighths cloud cover streaming across the continent, although tasks had been set and the fleet marshalled before the day was abandoned. On the Thursday a weak trough was passing through the contest area with some thunderstorms forecast and signs of early over development. The task set was from Kingaroy to any point within 50 km of Ban Ban Springs (90 km to the north of Kingaroy) and a second turnpoint of an area within a 50 km radius of Macalister to the south-west. The intention was to allow pilots to dodge rain showers and shorten their time in the tasking sector which proved to be weakest and lengthen it in the tasking area which was



▲▲ KZ piloted by Japanese national Mak Ichikawa
▲ HDK piloted by Queenslander Frank Turner

strongest. Again, a minimum tasking time was specified.

There were a couple of outlandings. Some competitors did not favour this type of tasking as they felt it left too much to chance and would have preferred the setting of a conventional task with fixed turnpoints. The tasksetters however considered the option of the Assigned Area Task permitted them to set a task in doubtful weather conditions, when it might not have been possible to set a conventional task without running a serious risk of putting most of the fleet into paddocks. At the pilots' meeting held that night, the majority appeared to consider the experiment a success.

Another successful experiment was to allow pilots to select their own start points from the designated list. Pre-start gagging proved no worse than with allocated start points, and the system reduced the workload on the organisers.

Results

Grae Harrison won Standard Class with Mak Ichikawa runner-up. Shane McCaffery won Standard Club Handicap Class in MV (aka Muck and Vomit), the Darling Downs Soaring Club's re-finished and wingletted Hornet. Lisa



PHOTOS: DARRYL HANSON



KU piloted by New Zealander Bill Walker

and Frank Turner won the Team's Prize in Standard Class.

In the 15m Class, Graham Parker was first with Hank Kaufmann runner-up. (Bruce Taylor did not fly the minimum of three days). David McManus, a 20-year-old up-and-coming Darling Downs pilot, won the 15 Metre Club Handicap Class and he and Dudley Waters won the Teams Prize.

Tony Tabart won the 18m Class with Trevor West second.

John Buchanan won Open Class (scored with 18m on a handicap system) with Tony Tabart second.

The Early Achievers' Award for the best performance in a pilot's first or second State or Nationals championships went to David McManus and the Wally Mills Memorial Trophy for the Most Meritorious Flight went to Mal Tuit in Kermit (Standard Libelle) for getting home on the Thursday after an heroic struggle.

There were only some half dozen outlandings during the competition. The last of these was the only outlanding on the final day, when a very experienced pilot who shall remain nameless, discovered he had programmed Kumbia rather than Kingaroy into his nav computer as the finish point and was duly guided by his GPS to a landing 20km short of home. While this might demonstrate the shortcomings of over-reliance on technology, scoring and verification of the Assigned Area Task by the ever-cheerful scorer, Ron Dungavell, would not have been possible had not all aircraft been running GPS-based task verification systems.

Open Class Aggregate

(Note: Drop a day not applied yet)

Mark Pilot	1	2	3	4	5	6	Total	Days	Average
BB John Buchanan	1,000	1,000	908	1,000	1,000	954	5,862	6	977
VTT Tony Tabart	952	967	1,000	949	931	887	5,686	6	947.667
XLP Little Petunia	896	905	873	872	944	992	5,482	6	913.667
KC Greg Kolb	921		810		967		2,698	3	899.333
BW Bob Ward	896	951	902	619	946	1,000	5,314	6	885.667

Standard Class Aggregate

Mark Pilot	1	2	3	4	5	6	Total	Days	Average
73 Grae Harrison	941	1,000	1,000	974	962	1,000	5,877	6	979.50
KZ Mak	1,000	917	938	969	1,000	993	5,817	6	696.50
FV Tom Claffey	955		957	1,000	973	932	4,817	5	963.40
MV Shane McCaffery			930		959	912	2,801	3	933.67
76 Paul Mathews	918	885	893	970	951	938	5,565	6	927.5
KU Bill Walker	970	840	832	949	954	952	5,497	6	916.17
UKB Mitch Turner	863	888	900	935	908	929	5,423	6	903.83
ZBJ Ivan Teese	945		821		921		2,687	3	895.67
JW Bevan Lane	813	888	844	991	868	818	5,222	6	870.33
HDK Frank Turner			839		905	867	2,611	3	870.33

15 Metre Class Aggregate

Mark Pilot	1	2	3	4	5	6	Total	Days	Average
UIT Bruce Taylor	1,000	1,000					2,000	2	1,000
UIT Graham Parker			1,000	986	1,000		2,986	3	995.333
BD Hank Kaufmann	986	766	953	990	943	965	5,803	6	933.833
AG Theo Neufeld	794	824	906	1,000	904	1,000	5,428	6	904.667
KO David McManus	864		887		908		2,659	3	886.333

Bevan Lane's meteorology was accurate and succinct, as always.

Many members of the Kingaroy host club provided catering services and performed other support duties. In addition, visiting pilots and their crews and supporters pitched in willingly to make the competition a happy and relaxed affair. The presentation dinner on the final night was especially well attended. We hope the competitors, support crews and well-wishers return to Kingaroy.



Winter Time

EMILIS PRELGAUSKAS

In the 'off' season in southern Australia, thoughts turn to doing all those other things that surround the core purpose of flying, but for which there aren't time or resources when flying is on. Through the efforts of Geoff Horwood of the Blanchetown Gliding Club, the Scout Association used the SA state association gliding display trailer as part of the scout activities display at the September Royal Show. Support activities

included numerous boxes of hand-out material packs collated at the Adelaide Hills club for individual hand-

out to interested members of the public at this week-long public event. Geoff followed this up with a scout internal promotion at their 'Woodhouse' headquarters using the same resources. Blanchetown club added in a harness and headphones to complete the picture of the very model of the modern major general, err sorry, glider pilot.

Full boxes of the hand-out publications have also been going out direct to clubs as far afield as ATC and Waikerie for their use. The Paskeville Field Days were the site of a

gliding promotion coordinated by the Balaklava Gliding Club.

Gliding has to work within the limitations of its resources, including airframe for display, visuals and words. So, it is informative to see what larger organisations like Scouts can do. At the Royal Show they were handing CDs to individual youngsters. Handed out like confetti, the hand-out is reputed to cost one dollar each. In addition to the standard information on activities on the CD, each CD had digital photos of the recipient in pose on each of the activities (including in the glider cockpit) for each to take home and use on their home computer, including the option as screen wallpaper. All are an on-going reminder of the activity choices open.





The Role of the GFA Development Officer

TERRY CUBLEY

GFA Council decided in October 2000 to invest some money in the development of the sport. Similar decisions had been made in the past but usually relied on one volunteer to implement a self-determined program of promotion. In this instance, Council agreed on a business plan and agreed to invest some dollars to appoint a paid development officer for a 12-month contract to implement the business plan with an emphasis on increasing membership.

Council completed the business plan in March and, following the final approval of this document, advertised widely for someone to take on the role. The only applicants were current glider pilots, none of whom had professional experience in marketing, but quite a number had good management development experience and qualifications and a wealth of knowledge of our sport. The final decision was made and Terry Cubley has been appointed on a part-time basis. The following is a summary of Terry's experience.

Personal profile:

Terry Cubley, 48-years-old.
Training and Development Manager for a manufacturing company in Ballarat, Victoria

Gliding experience

- 3,800 hours gliding
- Member of GFA for 33 years
- Club involvement – previously club committee, President, treasurer, instructor, CFI, coach
- State Association involvement – RTO/Ops, State President
- National involvement – GFA Council for 23 years, GFA president, Chairman Sports Committee
- International involvement – International Gliding Commission (IGC) delegate for Australia; Vice-President IGC; Competition Director, Gawler World Championships
- Sporting involvement – represented Australia in four World Gliding Championships (Hobbs, USA 13th; Rieti, Italy 20th; Benalla, Australia 21st; Omarama, New Zealand, 15th). Current holder of 300km National sped record.

I commenced in the Development Officer role in August and the initial aim was to speak with representatives from all clubs in order to get a feeling for what is happening around the country. So far I have spoken to representatives from over half of the clubs (44 so far) and this, combined with information available on the web page, has enabled me to build up a picture of our sport.

Objectives

The GFA Business Plan has five objectives. I have decided to concentrate on three of these (marked below *):

1. *Developing the sport**
2. *Freedom to fly*
3. *Excellent standards**
4. *Pursue affordability and accessibility of gliding**
5. *International recognition*

'Freedom to fly' includes primarily airspace and this is already being well-handled by Bob Hall. 'International recognition' is already being well-handled by the Sports Committee and is probably seen as being of less immediate concern.

The major focus is on increasing members and activity in clubs – 'Developing the sport'. As part of this, we will need to improve standards of instructing and airworthiness – in particular the 'face' that these areas present to new members.

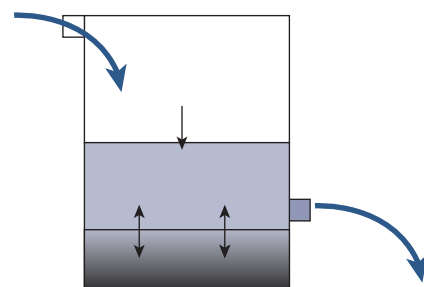
Improving affordability and accessibility will form part of the development of clubs – satisfying new/different types of members.

A model

This model is one way to represent membership issues with the GFA.

Before:

"The Watertank Model"



Consider the level of water in the tank as the number of members – note that it has reduced.

The density (colour) of the water represents how active the club members are. If there is little activity then there isn't much to attract new members.

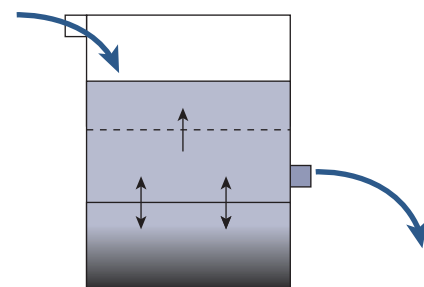
The incoming water represents new members coming into the club. How do we attract them into the system?

The outlet represents members who leave – for a variety of reasons. How do we slow this down? Improve the value?

The height of the outlet shows that we have a 'core' membership of older members who have been around for years. There is some agitation, a few bubble up and leave over time, and a few people slowly settle down into this group. The activity level of this group is an important consideration.

After:

"The Watertank Model"



This is the view that we hope to develop.

Darker 'water' represents a greater activity level.

This combined with positive approaches and clear goals, along with good promotion, results in an increased influx of members.

The outlet is much smaller, fewer people leave because the clubs are now meeting their needs, providing greater value for their time and money.

As a result, the membership level is increasing.

The number of core members is increasing

Membership trends

Tim Shirley has provided some figures from the GFA membership system. No information is currently available prior to 1996.

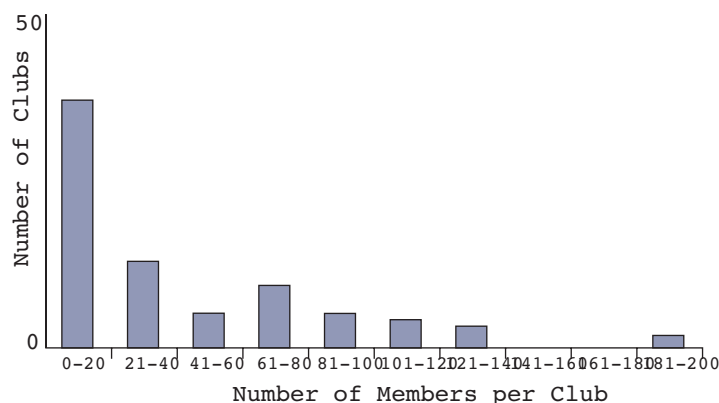
1996 2,350 members renewed
over next four years average of 591 new members per year (480-697) average of

December 2001

593 members leaving
per year (514-708)
2000 2,342 members renewed

The membership has remained fairly constant over this four-year period. Intake of members virtually equals the exit rate. It is not always the same people leaving that are coming in. We need to identify how many leave in the first 12 months of membership and how long they stay in the movement.

Estimates show the core membership to be approximately 1,500 to 1,300 – ie, the long-term membership.



Where are our members?

The graph shows the number of clubs of different sizes

- The 15 largest clubs contain more than 50% of total membership
- Half of our clubs have only 13% of our total membership
- 38 clubs have fewer than 20 members
- Only one club has more than 160 members (GCV)

The large number of small clubs is a concern. Many are small country clubs with limited opportunity to gain many more members (small pool of potential members in the area). Some are deliberately small.

Some of the big clubs are keen to improve membership numbers and have potential to do this – if they can change some of the issues that are currently stopping them.

Membership trends

What is happening to membership in your club?

8% Increasing
58% Stable
33% Decreasing

How active is your club?

25% High
33% Medium
42% Low

Trends

- The clubs with increasing membership are all highly active

- Highly active clubs do not necessarily have an increasing membership
- Low-activity clubs have generally fewer than 35 members (critical mass?)

All of the clubs with increasing membership were also highly active. However, not all highly active clubs had an increasing membership. Either a definition problem (are they really highly active?), or a small membership pool, or lack of facilities.

There is no clear connection between the size of clubs and the activity level and growth performance. The only problem appears to be

that clubs with fewer than 35 members have low activity – this could indicate some critical mass before clubs can operate well – a concern given that half of our clubs fall into this group.

The effort to operate efficiently and enjoyably in a small club falls

onto the same small group of people. They get tired of it. We have to break the cycle.

What is the major focus for your club?

The clubs indicated that instructing is a major focus for 70% of clubs, with a good percentage indicating local soaring, cross-country and passenger flying (AEF, etc)

What actions could improve your club?

The table shows the percentage of clubs wanting the following changes to improve the overall effectiveness of the club

• Improving aircraft/facilities	43%
• More members	38%
• Younger members	30%
• Increase member involvement	30%
• Reduced costs	26%
• Social interaction	24%
• Promotion	13%

Major areas for improvement include improved aircraft and facilities.

More members and increased youth in gliding are a major need.

Verbatims from a variety of clubs

A wide range of comments were made. Some of these were:

- keen new members inspire the older members
- traditional old-style instructors too patronising for modern independent people
- instructors are tired
- more members equals greater utilisation, increased funds

- personal service for new members makes a difference
- social side of club has dropped off
- too many people claim that they are ignored by the bigger clubs
- same people are running the club

Comments on instructors and instructing were very common, not a surprise because these members have a big impact on our overall operation and on new members.

No one doubts their commitment, but there were two main themes. Small clubs regularly commented that the instructors are tired. They are overworked, and struggle to turn up to really look after students.

In large clubs, they just cannot get enough hours to stay current. They compete for passengers and it is hard for newer people to get a rating.

Proposed Development Program

Federal:

- Develop a promotions proposal to improve the exposure and understanding of our sport
- Work with Operations Panel to review operations systems so as to improve the image that gliding creates at the club level

Regional:

- Liaise with regional development officers
- Support regional committees to achieve their promotion and development goals

Club:

- Identify target clubs (4-8)
- Work with club committees and members to create a development program, identify specific goals and report on progress, support club with implementation
- Review culture and target audience of selected clubs, aid in development of club 'offerings'
- Report to GFA executive on an ongoing basis. Provide progress reports to council via <businessplan@gfa>

So what is your opinion

I would like to use this (regular) column to get some input from you.

My initial question is to ask what it is that you value from your involvement in a gliding club.

Is it the social interaction, great aircraft, ability to attend camps, high standard of instructing, etc.

The second part of this is to indicate if your club is currently meeting this demand.

Please respond to the editor and we will include your comments in the next edition of this magazine after your response.

I would appreciate some comments from hang glider and paraglider members also, I am sure that there is a lot of common ground on this issue.

Everything is Bigger in Texas

TISH THE FLYING FISH



Meet Director Steve Burns arrives at Hearne Airport to open the the 2001 US Nationals

Texans say, “*Everything is bigger in Texas!*” and they are right. They have the biggest boots, the biggest hats, by far the biggest steaks (that hang over the edge of your plate) and the biggest cars. You can fit a dozen people in a Texan car... I know, I’ve been there!

Conrad and I have just spent four weeks in Hearne, Texas at the Austin Airports U.S. Nationals. Central Texas is quite beautiful, green and lush, but with plenty of landings and mostly flat ground. The air is very moist, being close to the gulf, but hot. It is around 40°C everyday and cloudbases start at 2,500ft at 10am and by 6pm reach 8,000ft.

The striking thing about this area is the consistency. We flew everyday, and clocked up around eighty hours thermal time in three and a half weeks. The thermals are not quite as strong as Ozzie flatlands ones, and not as punchy, but we got some solid 800+ average climbs on good days. The first two weeks practise included 160km triangles, out and returns, and some 200km flights. There was generally some wind in the morning that died by lunch time, but it was soarable by 10am. We towed behind Dragonflies and trikes.

The comp was really well organised. The Quest Airforce, plus many other tug pilots and launch staff, ensured that all 85 competitors got off the ground in reasonable time frames.

The first task was 206km straight line, and the most amazing thing for me was gliding into goal with Dallas skyline off to the left, with a bright orange sunset behind and a huge black storm above. The dramatic colour and contrast was incredibly rewarding after a long flight on my own.

After that the tasks included 170km triangles, out and returns and some dog legs. One day the weather report predicted rain for all of Texas, so they set us a short 80km task to

the south. After we all made goal the organisers told us that the radar had shown rain all over Texas except the 80km between Hearne airport and Giddens (our goal). We were so lucky.

The only weather problem for the whole three weeks was a cu-nim on course on the second to last task, where most of the field (the slowest people) couldn’t get past it and had to land 15km short of goal. However, all the other days were wonderful. There were usually small cu’s all over the sky (which makes flying easy) though they had a very quick cycle and often died as you got to them. Blue holes were to be avoided. Sometimes we raced very fast, but then had to scratch for 20 minutes in a hole until something developed again.

The last task was amazing. Three of the top five pilots missed goal. This shuffled the top overall placings tremendously. The lead gaggle was 300ft off the deck three kilometres from goal and had to scratch for ages to get enough height to get in. A rigid wing tried to get into their gaggle a few times, but eventually got pushed out (by the tighter faster turns of the flexies) and had to land underneath them.

JZ set up his swimming pool at the airport, where most people were camped in RV’s. So at night and after flying we had pool parties. There were covered golf carts for retrieving dollies during the day, but at night we used them to play dodgems on the dark runway. Conrad adopted a stray puppy, whom we named Buddy (being in the U.S. ‘n’ all). He wormed, de-flea’d, fed, trained him and everyone fell in love with him. Now he has



Tish gets ready for a Big day

Photos: Courtesy Tish

gone to a new home at a ranch in San Diego and he’s called Tex.

Because there is not much wind here, we mostly tried to fly back to the airport each day. I did a lovely 140km square one day, which was a really fun fly and for the first five days we didn’t even have to pack up our gliders – we would just land and carry them into the hangar.

The whole trip was made very easy for us, because our friends (Bo, Paris, Revo, JZ and Amy, George, Laurence and Gaye and Steve from Austin Airports) helped us with a house, transport, driving, etc. It was very social, with many a rum ‘n’ coke, and wonderful to have airconditioning at night, because it never went below a muggy 30°C.

Oh, out of 85 pilots there was only one king post in the whole comp. All of the top placings were pilots many of you know; they come to Oz to do the big comps most years and are consistent performers.

I would like to thank Vix Moyes and Ken Brown (Moyes US) for organising great gliders for us to fly. It’s wonderful to be able to keep up with the big boys, even in a small glider.

- 1 Paris Williams
- 2 Gerolf Heinrichs
- 3 Jersey Rossignol
- 4 Brett Hazlett
- 5 Jim Lee
- 6 Glen Volk
- 7 Conrad Loten

Malaysian Paramotoring Tour 2001



A lap of the flag pole

Photos: Courtesy Sloth

— Part 4

EWAN McCABE

Day 11, 18 February — Twin Towers Assault, Take II

I woke when my alarm went off at 5am, in time for a 6am departure. I looked out the window to see distant lightning illuminating the early morning sky. At the buffet breakfast I choose food that looked like it would be easy to swallow, but I still struggled to get it down, as my throat seemed to have shrunk and my mouth was as dry as a bone. Still, I did manage to get down some breakfast and got plenty of fluids into me — in preparation for a lot of sweating.

We jumped into the bus and drove off, almost on time (we were getting really good at this after 10 days). My heart sank as we reached the take-off field; it was wet, a bit of drizzle and absolutely zero wind — bugger. We set up width-wise on the rugby field this time, on the promise that when the wind did arrive it would be coming over the embankment from the south.

We got the word to go at 9am. Basir aborted his first two attempts (not a good sign for the rest of us, as he usually nailed every take-off attempt). Jay was first into the air; he was up and away at the first attempt, within about five steps. Rupert was now grounded, as the F4 was to be used by Olivier and Andy for the first tandem assault on the Towers.

God I tried, but my wing just wouldn't come up clean. I'd ditched my battery and reserve parachute by this time. I must also have been five kilos lighter after the buckets of

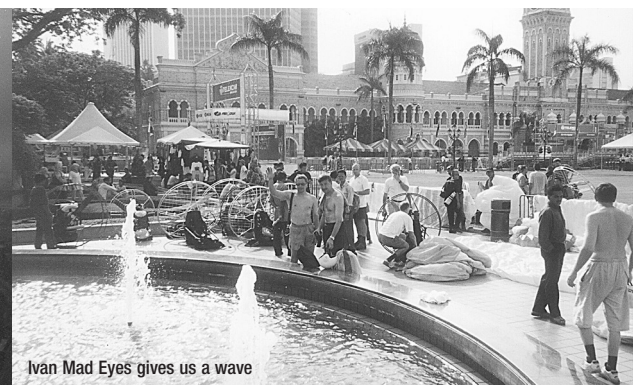
December 2001

sweat I'd lost the day before. Sloth had already had a couple of attempts to get away, without success. Time was moving on and the take-off window would soon be shut again.

We stopped for a breather and watched what was going on around us. Andy had apparently been a willing volunteer to fly tandem with Olivier — I told you he wasn't normal. Most of the solos had already departed for the Towers before Andy and Olivier had their first take-off attempt. After running a good three-quarters of the length of the rugby pitch they aborted as it didn't look promising. They carried the gear back to the starting blocks, got their breath back and tried again. About three-quarters of the way down the pitch they still weren't airborne, but it looked a lot more promising. Olivier then stood on Andy's foot and one of his kicker boots came off, but they were now airborne — just. At this stage they were just a few feet above the ground and stood no chance of clearing the embankment behind the goal post and the trees beyond. The audience, to a man, expected Olivier to abort now, before it was too late. But no, he swung ninety degrees left behind the rugby posts and headed-off through the carpark, at about 10ft. It was still not too late to abort before he came to the trees, but no, he carved a path between the trees



"Please keep to the left of the military airfield," said Col. Basir



Ivan Mad Eyes gives us a wave



Ewan comes in to land after the big Twin Towers flight



The Twin Towers

and ever so slowly, and started to climb-out. I'd only just started to breathe again at that stage. God knows what Andy thought, but maybe as it was his first time, he just thought it was normal! They did two circuits of the field to gain height and then headed off towards distant K.L., to be the first tandem to fly between the Petronas Towers – epic stuff! Olivier, *"Respect is due."*

Back to the job in hand, Sloth now came over and offered me his glider. He told me to, *"Try it, as he'd already done the Tower and it really wasn't all that it was cracked-up to be."*

I clipped-in and had a go at launching. The glider was certainly coming up cleaner than mine, but still I couldn't get enough momentum to get enough lift from the wing to get airborne. By now I'd worn-out my lungs and legs after yesterday's and the morning's exertions.

I'd started to get unclipped when Ivan Gorbachev (the one who did the Russian May-pole dance) came over. He couldn't speak a word of English, but made it plain that if I didn't try at least once more, I was a total whoose and he'd kick my butt. He also seemed to indicate, with the aid of sign language, that he would single-handedly launch me into the air himself. I tried to explain that I was totally knackered, but I wasn't really in a position to argue with someone the size of a Minsk brick outhouse. So I set up again, took a deep breath and started my run, with Gorbey pulling me by the harness chest strap... and bugger my butt cheeks, he basically threw me into the air! I was just skimming the grass, with full power on, climbing slowly. I wasn't going to clear the trees, but I knew how it was done now – I did a left behind the goal posts and picked a path between the trees in the carpark, all the time keeping a mental image of the least painful looking place to land. I could see that there was a big drop at the end of the carpark, but it wasn't until I got closer that I could see what was down there. Yes, it was one of the larger sewage treatment facilities for K.L! Don't fail me now, F3! After a couple of height-gaining circuits above the take-off field, with Gorbey waving wildly below like a mad Russian wind-

mill, I headed out towards my distant goal, with the multi-storey residential buildings just below me and the tips of the Twin Towers poking out of the early morning smog in front of me. About this time I rediscovered the ability to breathe.

By the time I'd reached about 1,000ft ato I could see that I had enough height to allow me to glide to multiple safe landing fields in the event of a flame-out. The air was pretty calm, with the occasional spot of rain. I was currently dead last in the race to the Towers, but at least this time I was in the race.

I passed to the left of the military airfield, as instructed in the briefing. You can see from one of the photos Sloth took the previous day that people flew straight over the top of it and some even went to the right of it! It was my first time flying a paramotor over a densely built up area, and certainly the first time over such large buildings, but the higher I got the more relaxed I got. The air was still pretty calm with only the odd lump; nothing came close to causing even the smallest of tucks. I passed over a golf course, a running track, a polo ground and botanical gardens – basically lots of safe landing areas.

According to the GPS, I was doing just over 30km/h ground speed; it also told me I'd be at the Towers in 10 minutes. I confirmed that there was plenty of fuel left, with the aid of my faithful mirror. The altimeter now said 2,000ft ato, which looked dead level with the Telecom Tower and slightly above the Twin Towers (the Telecom Tower apparently sits on a bit of a hill). The CBD was now directly underneath me and I could see the emergency landing field (a carpark) just below the Towers. I could also see now for the first time, four or five paragliders swarming slowly around the Twin Towers and the Telecom Tower, looking very much like multicoloured moths around a light bulb. The tandem had been and gone, but I recognised John, Tim and Rob's gliders.

A gentle wind was blowing at right angles to the Towers. This was to produce some strange turbulence, as had been predicted by the pilots

who'd done this mental stunt before. My first pass between the Towers was on the conservative side, just level with the very top of the lightning conductors. I held my breath (I was getting good at that by now) waiting for an asymmetric and resultant locked-out spiral dive to the ground. But no, nothing, just plain sailing. Phew. I dropped the engine revs to idle to loose height and slowly turned round for a second, lower pass. It was a really strange feeling, actually aiming for big, sticky-up things when you're flying a paramotor. Normally you do what you can to avoid them. This time through I was actually flying with the building structure on either side. On approach it just didn't seem possible that the paraglider would fit. It was only the thought of being called a girlie later on that made me keep going. Third time around and lower down still; I was on my own now as the rest had headed off in the direction of the landing field. I'd had a few bumps on lap number two, so I was ready for the bit of turbulence that I encountered on the third pass, which wasn't really that bad. It was a kind of strange rippling along the length of the canopy. Nevertheless, it was all that my tightly clenched buttocks were able to stand, so I waved goodbye to the Twin Towers and headed off to say hello to the Telecom Tower.

Although the landing field was by now only an easy 3km glide away, I took a fix on it with the GPS as it kept disappearing from view behind tall buildings, and as the sun wasn't out for reference it was easy to loose your bearings. I then re-checked the fuel and went to take some more video footage. At first it appeared that the camcorder battery had gone flat. I then realised that the super, long life, extra fat NiCad battery had bailed out – literally. I looked down to see where it might have landed 1,400ft below me. My first thought was of the inquest and impending trial. How could I hide the evidence that I'd been responsible for someone's untimely death? What would they charge me with? Assault and battery? Amazingly the battery was merely hiding on my lap – its nerves had obviously suffered as well. Anyway, I then made sure he

was put away safely and carried on with a few laps of the Telecom Tower. The final glide to the landing field was done at tick-over and I arrived with a very comfortable 800ft to spare. I watched a couple of paragliders come in to land and started my final approach. However, the lure of another large, sticky-up thing got the better of me. I did a couple of laps around the massive flag pole before touching down on the cricket square. Hooray, mission accomplished! Home in time for tea and medals. Handshakes, slaps on the back, photos, cold drinks and ice creams (thanks to Rupert) all round. Soon it was time to load the gear back onto the truck. With Tim the loadmaster in charge, we were getting pretty good at this now.

Paramotor Tour Rules:

- Rule #1** *Don't let anyone else who doesn't have a paramotor load your gear.*
- Rule #2** *Don't let anyone who can pretend not to understand your language (especially swear words or simple instructions) load your gear.*

We got bussed back to the hotel and hung around waiting for the gear to turn up, as we wanted to make sure that it arrived okay and was unloaded carefully. Imagine the scene; a busy K.L. side street on a Sunday afternoon (market day), while at the edge of the market 20 paramotors were being dismantled, having fuel drained, being cleaned and packed up ready for shipping out of the country. Yes, it was mental. I was told that some of the fuel actually was siphoned back into the fuel drums, but judging by how slippery the pavement was the following day (after the petrol had evaporated and left the 2T oil) a large percentage didn't make it back to mother container.

We got as pissed as pissed blokes with a good reason to get pissed that night. I'll give you a brief summary: After a team meal in a very posh fish restaurant we were waiting in the foyer to leave, when Sloth did one of his party tricks. I won't repeat it here, as it is a visual trick and also not for people of a nervous disposition. He then followed it up by scooping a large live fish out of a tank and chasing Sasha around the restaurant with it. By the time the fish ended up back in the tank, Sasha had tears in his eyes he'd been laughing so much. Sloth said that, "If they didn't want people to scoop fish out, then they shouldn't leave the nets lying around." Later on, a few hardy (and pissed) soles were left at a table in the main market street. There were a few street entertainers and hawkers around. One very annoying individual had already been told to clear off several times but he kept coming back. His act seemed to consist mainly of a furry, white, toy rat on the end of a string. Anyway, he came back once too often, so Sloth quickly scooped up the toy rat and shoved it in his mouth so that only the tail was left sticking out. The



mutant then realised that he was in the presence of a superior force and cleared off for good.

Day 12, 19 February – Last day in K.L.

We woke up in a small, and by now aromatic, room surrounded by two open paragliders. In the previous night's pissed state we thought it would be a good idea to open them out to dry before we packed them away for the flight home. So after a lot of swearing we managed to get them packed away, along with the rest of the gear, and took it all down to the foyer ready to leave. One of the more organised types had got a list up of everyone's email addresses, so we got copies of that, said lots of, "I love you man's", and then headed off into the sunset.

We only had a five hour flight back (on the same time zone) whilst most of the rest had between 10 and 12 hour flights, although some groups were finishing off the tour by having a real holiday and going on to other Asia/Pacific destinations before travelling back to Europe.

Summing up

All in all, will I go back there again? – Nah. – Not next year anyway. I might wait a while. If I did go back:

- *I would be with a paramotor wing and an F4, plus a hard transport case for the motor.*
- *I would take helicopter blade tape, as the standard prop tape got quickly eaten-up by the abrasive sand.*
- *It would be with a digital camcorder.*
- *I would take a 2T-oil measuring bottle.*
- *It would be with a holiday either side of it.*
- *I wouldn't assume that large hotels or beach resorts have mozzie repellent, toothpaste, sunscreen or spirits.*
- *It would be with a Russian pilot detector that warns you if you're within one kilometre of a Russian with a motor on their back.*

Further reading:

Bailey web site: [www.baileyaviation.com/]

Paramotors UK web site: [www.paramotorsuk.co.uk/]

Sky Systems web site: [www.skysystems.co.uk/]

Sky Systems write-up: [www.skysystems.co.uk/geoff.htm]

Basir's web site: [www5.jarring.my/skydive]

Adventure web site: [www.adventure.tm.fr/]



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What do Thermals look like?

WAYNE M. ANGEVINE

Thermals are the fuel of soaring flight. This article will describe what thermals look like (if we could see them!) and how they behave. I hope that your flying experience will be improved by knowing a little more about thermals. To start with I need to say that the atmosphere is endlessly complex and capable of doing almost anything. I'm going to try to talk about the simplest and most common cases. That means clear to partly cloudy skies, light to moderate winds, and daytime. I'll say a little about more complex cases toward the end.

For impatient readers, here are the basics: Thermals are like fat trees, with small, chaotic roots near the surface and large trunks above. The trees tilt and sway with the wind and change with time, and sometimes they let go of their roots and drift. Between the trees is sinking air. Where thermals form, their exact shape, and how fast they change is hard to predict, since it depends on details of the interaction between the ground and the air. Key principles to remember are:

- *Thermals are driven by temperature contrast between the ground and the air.*
- *Air exists in parcels (blobs) that have mass and momentum as well as temperature and humidity.*
- *Plumes near the surface look and act different from thermals well above the surface.*

The Boundary Layer

The part of the atmosphere in which we fly is the atmospheric boundary layer (BL for short). It's the air that's affected by the ground surface on time scales of an hour or so. In the kind of conditions we're talking about, it's the lowest 500-2,000m of the atmosphere. The BL is shallow (100-200m) at night, builds up in the daytime as the sun heats the ground, and collapses again in the evening. BL height is governed by the amount of sunlight, the amount of moisture available at the surface, and the stability of the atmosphere. Areas with lots of surface moisture, especially with crops that use a lot of water, tend to have relatively shallow boundary layers and weak thermals; deserts have deep BLs and huge, booming thermals.

The boundary layer has three important sublayers: the surface layer, mixed layer, and entrainment zone. The surface layer is the lowest at 100-200m. The mixed layer extends from the top of the surface layer to near the BL top. The wind speed is zero at the ground, increases through the surface layer, and is roughly con-

stant with height in the mixed layer. In fact, the mixed layer is called that because turbulent mixing causes all quantities (potential temperature, wind speed, water vapour, pollutants) to be uniformly mixed throughout the layer on average. That doesn't mean that differences don't exist at the scale of individual blobs; if everything were perfectly uniformly mixed there wouldn't be any thermals and we might as well stay home! The entrainment zone is the interface between the BL and the free atmosphere above, and is where clouds form. The surface layer is unstable, the mixed layer is neutral, and the entrainment zone and the atmosphere above are stable.

Thermals and Plumes

The sun warms the ground, and the ground in turn warms the layer of air nearest to it. As soon as a parcel of air is warmer than its surroundings, it starts trying to rise. Air has mass and momentum and it's immersed in other air, so it can't just go to its desired level instantly. Furthermore, the ground is not uniform; some parts are darker and/or drier and heat up faster, and some parts are moister or lighter in colour. The result is that there are blobs (parcels) of air forming, rising, and pushing other parcels out of the way. Some of those parcels end up at the ground, get warmed up, and want to rise themselves. All of this turbulent motion leads to small plumes of varying shapes and sizes of rising and sinking air. Some of the rising parcels meet up with others and form larger blobs; others get torn apart by turbulence and lose their identity. The size of parcels in the surface layer is roughly proportional to their distance from the surface. The air within a plume is rising, but it is also turning in all three dimensions, its motion depending in a completely unpredictable way on the small-scale shape, colour, and moisture of the ground and the motion of all the other parcels in its vicinity. Plumes start out at the surface

with no average horizontal speed. They pick up bugs, seeds, and sometimes trash, all of which help us to see where the air is rising.

Warmer parcels of air converge as they rise. By the time they reach the top of the surface layer, 100-200m above the ground, they have joined into relatively large columns of rising air. The size of thermals in the mixed layer is roughly proportional to the BL height, so the columns are a few hundred metres to as much as a couple of kilometres in diameter. We could think of the thermal as a tree with a trunk in the mixed layer and roots in the surface layer. The air within the thermal still has horizontal and turning motions as well as rising, and those motions depend on the motions of the surface layer plumes that formed its roots. Remember too that these are fat trees, roughly as wide as they are tall. Thermals are one or two degree Celsius warmer than the surrounding air, and they rise at one to three metres per second. The air in thermals moves horizontally more slowly than the surrounding air because it "remembers" being near the surface where it was moving very slowly. In fact, thermals often reach the BL top with cores that have almost exactly the same characteristics (potential temperature, water vapour content, speed) that they left the surface with.

Just as surface layer plumes tend to form over small patches of warmer and/or drier ground (including artificial patches like parking lots or building roofs), thermals tend to form more often over large warmer and/or drier patches. The tendency isn't perfect, though, because other physical phenomena still play a role. For example, thermals may be kicked off by an obstacle that causes warm air to break away from the surface. Even over large hot patches of ground, a vigorous thermal may suck up all the warm air, bringing in cooler air from the sides, and the thermal will disappear while the ground warms the air again. What happens depends on details of the patch size, wind speed and temperature contrast.

When rising air reaches the top of the BL, it spreads out, again like the top of a deciduous tree. The air is now more dense than its surroundings, not because it has changed but because the air around it is warmer. You may remember from high school physics that a gas cools when its pressure is reduced, and that's true of rising air in the atmosphere as well. Scientists often work with potential temperature, which corrects for that change. The air at the top of the BL is warmer in potential temperature than the air rising from the surface. In fact, that's what defines the BL top. If the air in the thermal were still warmer (less dense), it would continue to rise, and wherever air from the surface can reach in a short time is, by definition, part

of the boundary layer. Sometimes the tops of thermals are visible as cumulus clouds. Because the rising air has momentum, it actually overshoots its level of neutral buoyancy before falling back. If the stable layer (sometimes called the inversion) atop the BL is weak, the clouds may build up and it may rain.

All of the parcels and their motions also have time scales, which can be thought of as the lifetime of a parcel, the time it maintains a recognisable identity. The time scale is related to the parcel's size and therefore to its place in the layered structure of the BL. Surface layer plumes have short lives before they merge into thermals or mix with other air and lose their identity. Thermals live about as long as it takes them to move from the bottom of the mixed layer to the top. Since they are rising at a few metres per second and the BL is 500-2,000m deep, thermals last several hundred seconds or 10-20 minutes. So our tree analogy is at best a snapshot in time. It would be more realistic to think of thermals as fat logs. By the time the top reaches the BL top, the bottom of the thermal may have changed or moved. Thermals and plumes also tilt and sway with the wind, all of which explains why your flying buddy is going up like crazy and you can fly under him and never see anything but sink. On the other hand, thermals can persist over a particular ground feature for very long periods of time. The log or tree analogy is also good because the sides and edges of thermals aren't smooth, they are complex just like the bark of an old tree. Around the edges, the thermal air mixes with the surrounding air in chaotic swirls and eddies.

While we've been focusing on a bunch of plumes that got together to make a thermal, the rest of the boundary layer hasn't just been sitting idly by. Any time a parcel of air moves, other parcels have to move as well to accommodate it. Two parcels of air can't occupy the same space any more than solid objects can! Furthermore, conservation of mass requires that when one parcel rises another has to fall to keep the total amount of air at any level roughly constant. We've also been thinking of the thermal as an isolated individual, when really it's part of a field of thermals. They may be organised roughly hexagonally or in horizontal lines, and they occupy somewhat less than half the horizontal area at any height (except at the very top of the BL). In between the thermals is cooler, sinking air. That's right, there's more area of sink than lift! (*Sub-ed note: I knew it!*) The good news is that it's generally not as strong. Again, conservation of mass applies; if the thermals are smaller than the sink, they must be stronger to move the same amount of air. As a thermal reaches the top of the BL, it spreads out and finally loses its identity, becoming part of the sinking air. Individual molecules may reach the

surface, be warmed again, and become part of another plume and another thermal, and so on.

Observations

How do we know about thermal structure? There are several ways to "see" what the air is doing in the boundary layer. Sometimes we can get clues visually. Clouds often mark the top of the thermals; on a polluted day we can see the dirty BL as we look down from an airplane or a mountain. Dust devils are particularly strong surface layer plumes.

Scientists have developed more sophisticated techniques. Water tanks in laboratories have been used to visualise atmospheric flows. More recently, remote sensing instruments have been developed for use in the real atmosphere. I use a specialised radar called a boundary layer wind profiler to study BL turbulence. The best pictures of thermals come from lidars (laser radars).

Another way to "see" thermals is with numerical models. Even with modern computers it's still too difficult to simulate the BL with full resolution. Large Eddy Simulation models (LES) resolve the main features of the BL. LES output shows thermals as blobs of rising air of various sizes and shapes. The smaller structures in the surface layer and at the BL top are not resolved by LES models.

Thermal Myths

People naturally try to explain what they observe, often by making analogies, and sometimes those explanations grow into persistent myths. Probably the two most persistent myths about thermals are that they rotate in a particular direction because of the Earth's rotation, and that they are doughnut-shaped (toroidal). Neither is true of observed or modelled thermals. The Coriolis force due to Earth's rotation is much too weak to act significantly on small, short-lived flows like thermals. Thermals have rotation, due to the differing momentum of the plumes that make them up, but they don't rotate in any predictable direction or at a predictable rate. Even dust devils don't have a preferred direction of rotation. As for doughnuts, the only way that air can recirculate is by going down to the surface and being reheated there. That also implies that the strongest sink is not right next to the strongest lift, it's about as far away horizontally as the height of the boundary layer.

Weak Thermals and Non-thermal Lift

As the wind gets stronger or the sun weaker, buoyancy due to heating at the surface becomes less important. Thermals become smaller and less well-defined. It's hard to state a simple rule of thumb for when the wind is strong enough to have a major effect, because that depends on the strength of the sun and the surface moisture. On overcast or very windy days, turbu-

lence is produced by the wind shear, that is, the change in wind speed or direction across a layer. Shear-driven turbulent motions are small compared to thermals, and can't usually be taken advantage of for soaring.

There are several kinds of lift other than thermals. Slope lift is the most obvious – air hitting a slope rises to get over it. Wave lift is more subtle. It occurs in a stable layer when the air is pushed up or down for some reason and then oscillates. Waves caused by major mountain ranges are often visible because they form lenticular clouds, and mountain waves have been used to set soaring altitude records. However, any obstruction can make waves if the atmospheric layer is stable, no matter how close to the ground. Mountains and valleys also produce non-turbulent lift driven by thermal gradients (but not thermals as such). Fronts, both large scale cold fronts and small scale sea breeze fronts, can produce large areas of relatively smooth lift, but cold fronts often have clouds that make flying impossible.

Conclusions

I hope this article has been helpful in explaining thermals and some of the latest methods of observing them. Remember that the atmosphere is very complex and almost anything can happen, but what I've described here is what happens most often.

References

This article was originally published in S&E Modeler magazine [www.semodeler.com] with colour figures illustrating the observations (those figures would not be useful in greyscale reproduction, so have been removed from this version, together with references to them). Unfortunately that S&E Modeler issue (January 1999) is sold out, but you might be able to find a copy somewhere. The best current textbook on the boundary layer is *'An Introduction to Boundary Layer Meteorology'* by Roland B. Stull. It's quite readable, at least in the introductory parts, and should be available in any decent university library. Dennis Pagen's *'Flying Conditions'* is a good small book written from the perspective of a hang glider pilot. The classic text on soaring meteorology is C.E. Wallington's *'Meteorology for Glider Pilots'*. Both appear to be out of print, but could probably be found with a little searching. My article in the March 1998 Bulletin of the American Meteorological Society entitled *'The Flatland Boundary Layer Experiments'* shows more figures of different boundary layers. It should also be in libraries.



Wayne Angevine is an atmospheric scientist at the University of Colorado in Boulder. He does research in boundary layer dynamics with radar and other instruments. He's also built and flown radio controlled sailplanes for about 20 years.



Twenty-Knot Crosswind: Put it down or wait it out?

A Grob 103 Passenger Tells the Story

BETH ANN SCHNEIDER

There I was... in the back seat of a Grob 103 holding on for the ride of my life. Four hundred feet off the runway descending sideways over the windsock... then the grass strip paralleling the runway... then the airport fenceline — and running out of runway fast. It isn't supposed to happen this way!

A Routine Flight Begins

It was a beautiful summer afternoon with no more than the usual mountainous breeze and cloud build-up. The weather showed a chance of scattered thunderstorms, but nothing out of the ordinary. I headed to the Russ McDonald Field in Heber, Utah, USA in hopes of flying with my friend in his J3 Cub, but when I arrived, it was just coming in from an earlier flight — with an oil leak. An hour later we determined the source of the leak, fixed it and changed the oil. By that time, the next scheduled pilot had arrived and I was out of luck for a flight that day.

About that time an offer came my way from a glider pilot who had an empty backseat for a routine flight around the valley. Would I like to go? You bet!

My pilot, Paul, is a veteran aviator of 26 years with a number of ratings and a commercial glider rating. I had flown with him many times and was looking forward to another

glider adventure with him in the Grob, one of our Utah Soaring Association (USA) club ships.

Scratchy but Uneventful

In laymen's terms it was a scratchy flight for the first 45 minutes or so. We released at 2,500ft agl over the ridge and scratched around for lift, which was sporadic at best. Up 300ft, down 400ft... up 200ft, down 100ft... up 300ft, down 200ft... was the general pattern. We were holding our own in and out of 9,000ft msl.

The wind was strong but nothing more than we usually experience. We were keeping a close eye, however, on a storm to our south-west that had started to develop just before our lift-off. It was a nasty, big storm covering the entire southern edge of the valley, but it was moving predominately north-east showing no signs of encroaching in our direction. These sorts of storms are common in the mountains where we fly. They occasionally move in to prevent or thwart flight, but more often than not

they hover at one end of the valley or another.

We weren't alone in our flight. The Fire Carrot (Soar Utah's Schweitzer 233) buzzed us a couple of times. It was LeRoy Johnson, one of Soar Utah's instructors, giving a ride. He wasn't having much more luck than we were finding consistent lift. He headed in after about 30 minutes. We also were in radio contact with Corry Branham, a (USA) club member, who reported in at 12,000ft msl above us on the ridge. He too, headed in shortly after we heard from him.

The Fun Begins...

"Want to take it for a while?" Paul asked.

"Sure", I said, straightening up in my seat. I scratched around for a few minutes but didn't find much lift. I suggested that we, too, might start thinking about heading in. It was beginning

to get really hot in the cockpit and we were close to our minimums at 7,700ft anyway. We had been up about an hour and it seemed like it was going to be more of the same. All of a sudden I caught a thermal that pegged us up at 1,000ft/min! It was awesome — just the sort of thermal catch that keeps you flying when maybe you should be heading for the field. Up, up, up we went.

"We're getting sucked up to heaven like a homesick angel", I sung out with a big grin on my face. Making up titles for Willie Nelson tunes is a favourite back-seat pastime of mine.

"Let's stay a little longer!" I squealed. "I want to see if can get it up to ten grand!"



Pilot Paul



Passenger Beth Ann Schneider

I blew through 10,000ft like it was absent from the altimeter and levelled off at 11,500 over the field. The storm was still holding off with little or no change than our last check – or so we thought. It was then that we got the call from Dave Robinson, the owner of Soar Utah.

"Hey, Paul, the wind just shifted. We're looking at one-two-zero at 20kt gusting to 22."

"My airplane", Paul said immediately. I relinquished the controls and instinctively cinched down my shoulder belts. That's a perfect crosswind to our runway two-one, I thought, but said nothing.

"You might want to think about coming in on runway three to miss the hangar rotor on two-one", Dave added. *"And you might want to think about hanging out for a while"*, he continued with complete confidence in his advice.

"Hang out for a while?" I broke my silence. *"This isn't going to get any better."* I somehow found the words, realising that even though the storm was holding off, it was probably to blame for the sudden shift in the wind and the rising air currents. *"If anything, it could get a lot worse."*

Paul agreed, but put the glider in a crosswind mid-field position all the same. *"Let's just see what it looks like it's going to do"*, he said with complete confidence in his ability to make the right choice.

We had flown only a few minutes longer when we ran into the most violent turbulence I have ever experienced in my 12-year general aviation career. I was bouncing all over the place, glad that earlier I had cinched down my shoulder straps. The turbulence scared me, but Paul assured me that we were in no danger from the bumping around. At one point, descending out December 2001

of 9,000ft, he pushed the nose over to penetrate the wind shear produced by the convergence of two opposing air masses. We gained 500ft!

"Call it in", Paul said in a matter-of-fact tone. *"We're going in on runway three."*

One for the Memory Books

"Heber traffic, glider 46 Yankee is 8,500ft just off the end of runway three. Inbound." I was nervous, but I don't think my voice cracked. I took a deep breath to calm down and continued, *"Heber Unicom, wind advisory."* I asked, already knowing the answer.

"Glider 46 Yankee, wind is one-two-zero at 20 gusting to 22", came a serious reply from the FBO. I got the feeling they were waiting and watching to see what we were going to do.

"Advise Unicom that we are going to fly upwind over the runway with a left turn out to set up a left pattern for runway three", were my radio instructions from Paul.

I complied, surprised at my composure and started sizing up our situation. The wind was howling. I could see the windsock from our position and it was sticking straight out perpendicular to the runway. I can count on one hand the number of times I've seen that in the eight years I have flown at that airport. I cinched down my belts again, but they were as tight as they would go. I tucked the microphone between my legs where I could find it if I needed to and started looking around the cockpit at what might fly around if we hit hard. I tucked everything away I could, water bottle, camera, and buttoned down every pocket that would snap. I checked my head surroundings, satisfied that I wouldn't hit my head on anything. I was trying to figure

out what to hold on to and how to brace myself when Paul made his left-hand mid-field crosswind turn. In what seemed like no more than a second he was turning downwind. We crabbed along the downwind leg nearly perpendicular to the runway. Neither one of us said a word – Paul concentrating on every move, nor me concentrating on supporting him and bracing myself for what promised to be a pretty hairy landing.

We turned base, then final, again almost perpendicular to the field. I caught myself staring at the altimeter – 6,000ft. Looking good, I thought. We are perfectly on course – only 400ft to go. Suddenly a violent gust of wind pushed us left of the runway like we were a mere kite on a string. Paul tried to counter, but the gust persisted. In one split second I remembered every crosswind landing I had ever had, but couldn't recall a single time that my aircraft didn't respond to my control – but then, I always had an engine I could rely on. Paul was calm, but working hard to get the aircraft to do what he, rather than the wind, wanted it to do. He held it steady to our course, but we were 50ft left of the runway and 350 off the ground. I looked down and saw the windsock coming at us – fast! Okay. We're going to take out the windsock, I thought, holding my breath, but we'll survive that. But I was worried about how quickly we were running out of runway.

"I'm okay", I said with complete confidence. *"You're doing a great job."*

"I'm going to put it down on the grass", was Paul's reply.

"Okay. That looks good. Whatever you need to do. Go for it." I said, surprised again at my composure.

We were fairly well lined up on the grass field that runs parallel to our asphalt strip, but from my vantage point, there was no way we were going to make it. Ten seconds had passed and we had cleared the windsock, but the gust was relentlessly pushing us off to the left. Now we were left of the grass field over the airport fenceline. Okay, we're going down on the road [that parallels the grass strip], I thought to myself, saying nothing. That's okay, people make emergency landings on roads all the time. Oh no! Look at all those cars! In a split second I realised, for perhaps the first time, why all of my previous instructors had discouraged choosing roads over fields for emergency landings. At that point, with my novice glider flying experience, I truly thought the wind had won, but Paul was about to prove me wrong.

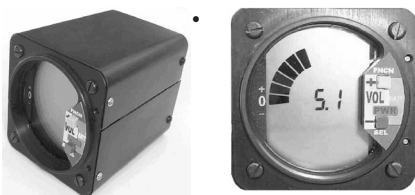
What happened next was a series of events I can only describe as sheer brilliance on the part of my pilot. Saying nothing, and now less than 150ft off the ground, Paul turned the glider straight into the wind – perfectly perpendicular to the runway. We were heading straight for the hangars 200ft dead ahead. Our 30kt forward motion put us back over the runway.



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Malcolm Crampton

In a flash, Paul kicked the rudder and dropped the upwind wing, turning us straight over the runway. A split second later we touched down, a bit harder than usual, but relatively straight. In another flash, he turned us back into the wind and onto Taxiway Alpha, the glider staging area. We stopped in perfect position.

Our screams of delight releasing the incredible tension we had been under were apparently heard throughout the Wasatch Aero FBO and hand-held radios all over the field. In all the excitement, I didn't realise I had jammed the mike button as I braced myself at the moment of touchdown.

Recovering

In less than a second after we landed, Dave Robinson, his wife Lisa and a glider student pilot we didn't know pulled up next to us in the Soar Utah golf cart. I was almost shocked to see them. I had been concentrating so hard on our situation that I realised, only then, that I was oblivious to what might be going on below us on the field. Dave said nothing, signalling us that either he thought that was one hell of a piece of flying, or he completely disagreed with our decision to land – or both! The student pilot looked as if he had seen a ghost – and maybe he had!

"Need some help with that?" The student pilot said pointing to the glider. Paul nodded.

"Absolutely awesome piece of air-work", I said in a voice too loud, giving Paul a well-deserved hug.

Dave hooked the glider up to the golf cart and we started towing the ship back to its ramp spot with Paul guiding one wing and the student pilot the other. Paul and I were silent except for an occasional nervous giggle and side-to-side head shaking indicating that the reality of what we had just done was beginning to sink in.

"That was some straight shootin' cowboy!" shouted Scott Meehan, the manager of the Wasatch Aero FBO, as he passed by on his tug. *"You bet it was!"* I shouted back smiling, still pumped from the experience.

Lessons Learned

We hadn't even finished tying down the Grob when we started debriefing what had happened, going over and over it for hours long after the flight. We debriefed with Dave as well, who finally revealed his thinking about the episode. In the end, we realised there were many lessons to be learned – and shared – from our experience.

First, and foremost, we should have come down sooner. Twice, we went against our own instincts to head back to the field – first when the other two gliders went in, and second when I pegged the glider at 1,000ft/min completely out of the blue. That should have signalled us that things were changing in a big way. Even though we had been keeping a close watch on

the storm, and it seemed not to be a threat to our flight, we totally underestimated the power of the wind to create a downwash that would adversely affect the airport 15 to 20 miles away! Never underestimate the power and unpredictability the wind.

Second, regarding the landing itself, while at the time it seemed like the perfect landing, there were some things we could have done differently. In retrospect, we should have circled more upwind before setting up the crosswind pattern. Always take advantage of being upwind in a glider, especially in unusual weather conditions. We also should have extended our downwind leg to have more runway to work with. Always set up a pattern that will give you the most runway possible ahead of you.

Third, regarding our decision to put it down, rather than to wait it out – for our experience, on that particular day, with those specific conditions, Paul and I still agree that we (he) made the right decision to put it down. As it turned out, conditions did get worse and had we chosen to hang out we might have been looking at a much more serious situation that we were. A few days after the incident I asked Dave about his suggestion to hang out, which still seemed like strange advice to me. He told me that he had encountered our weather situation before and literally hung out at 10,000ft waiting for the wind to settle down. His did, ours didn't. What he had suggested did make sense once I understood it, but when it came right down to it, Paul, and Paul alone, was charged with assessing the situation and making the call. Size up the situation, make a decision, and stick to it.

Fourth, looking back I am still amazed at my ability to stay calm, cool, and collected – especially as an aviator-passenger not in control of my own fate. I have envisioned emergencies in flight many times, and, of course, have trained many hours for them as a pilot. But in the number of times I have taken flight with other pilots, I have given little thought to the fact that one day I might be a passenger in an emergency situation. Don't underestimate your ability to calmly handle an emergency as a pilot or a passenger. And be prepared, no matter which seat you are in, for whatever might happen.

Finally, be careful where you stick the mike especially in an emergency situation – or make sure you don't stick the mike unless you want everyone to hear what you say (and wish you hadn't said) after the excitement is all over!

Final Thoughts

If I had it to do it all over again, would I? Of course! And I already have! Regarding my pilot, would I ever fly with him again? In a heartbeat! You see, my pilot was none other than my own husband!



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Quiet Day at Home

EMILIS PRELGAUSKAS

When the strip is next to the home, which is also the office, things can get a bit out of hand. For one thing, it means factoring in to the work schedule for the day that a good forecast can call for unplanned hours at short notice, which are also unbillable.

My fellow pilots are usually more considerate than this. The flow of emails and phone calls in the norm rises as the weekend approaches. But the forecast is notoriously fickle; and many a forward-planned good day for the weekend has gone to pot once the day itself has rolled around. So, not surprisingly, sometimes a mid-week day is grabbed at short notice to make up for the tendency for bad weather to gather around weekends and public holidays. A long proven feature well-known to glider pilots but mysteriously not reflected in the official met statistics. This flexibility suits those pilots who are retired, self-employed or can flex-off; and leaves a trace of jealousy with the rest. And it encourages the club to favour its independent operator rated pilots, and to emphasise mutual obligation issues to those enquiring about introductory rides or flight training.

It's amazing how many loner tasks are involved in an unspoken collaboration for a day's flying. The gliders live in their individual hangars; and every pilot is expected to be responsible for their own – from the rituals of the wash, DI, to getting the glider out and transported to the launch point. Meanwhile, others are on other parts of the airfield doing

the same; or out on the strip contemplating burrows, kangaroos and winch cables; holes to be filled, weeds to control, wildlife which move away for the day as the machinery racket and movement takes over the strip. In amongst these solo activities the occasional meeting occurs as people wander to or past another hangar wondering whether a second pair of hands is helpful, pulling the glider out, holding controls for checks or the obligatory puff in the probes at nose or fin, the fitting of towing gear. This leaves, overall, a mood of quiet progress. Everything gets done; these people know one another so well that seldom do sentences need to be spoken to completion.

Nothing is left undone. There is no aimless hanging about. There is no one without something to keep them occupied. There is no need for flying list, duty pilot, and formality of any kind.

And a flying operation spontaneously emerges from these diverse ruminations. The day's first cu forms about the time the first glider stops over the first cable end. The winch is warm. After a bustle in the cockpit, short or long as suits the individual, the sniffer gets airborne. Other gliders with pilot combinations progressively appear at the launch point – to sit

and wait, or follow on the launch line. Time-outs are called by the odd cable break event out down the strip, or by the pilots waiting for better conditions gathering around the coffee table, which was set up a long time ago out on the paddock clearing at the strip end. People gather to either swage a repair, or to share a nip of coffee and shared biscuit. When numbers are larger than expected, the last drinker gets the dog's bowl out of the boot.

If the conditions are challenging, it has been known for lunch to be declared; the gliders left lying scattered about the launch point in the best European landed gentry tradition while the pilots mill around that table scavenging from the few who have thoughtful spouses who pack lunches. The lunch packs themselves, long ago, were adjusted to the traditions of feeding the multitudes.

As the day wears on, the mutual questions begin to determine how many more cables will be needed, anyone for that last spare? Gliders hangar-fly deep down the runway and off onto taxiways. Pilots come back for their cars to tow in as the last launch proceeds. Batteries and water bottles are decanted; lists of minor jobs are assembled for dealing with in the period before next flight; dust covers and hangar doors get closed.

People gather for a last coffee and chat, or wander off to other obligations. The last flight may linger upstairs in the remnant lift as the shadows lengthen and the strip becomes deserted. I know the day's actual set work is waiting in the office still, and tonight will be a late night, but for now I can eke out the air time as things settle in for dusk, knowing I can taxi in, leaving only the push into the hangar, the closing up rituals, before the walk home. By then the kangaroos will be back grazing on the airfield, the last impression one of a quintessentially Australian scene. ✂

Australian Team for Mafikeng

TONY TABART

The World Gliding Championships are being held in Mafikeng, west of Johannesburg from 18 to 31 December 2001.

Atending the worlds are Lars Zehnder flying Peter Griffiths' Nimbus 4 (Open Class), Graham Parker in his own ASW 27 (15m), Ingo Renner in a new ASH 25 (Open) and Tom Claffey in an LS8 (Standard). Tony Tabart is team manager.

Lars Zehnder/Peter Griffiths, Tom Claffey and Graham Parker represented Australia at the Pre-Worlds in Mafikeng in December 2000. Lars and Peter won the Open Class and Graham Parker came fifth in Standard Class. The first

three days were won by Lars and Peter and they led Open Class by a good margin for the whole competition. Graham won the first and the last days. At the presentation ceremony, Lars and Peter also collected a trophy for Australia for the fastest speed in the competition. Conditions last year were mostly affected by thunderstorms and, accordingly, many prescribed area tasks were set. This type of weather is apparently the norm so we can expect thunderstorm flying again. ✂

Bali Report

BOB PRATT



The author enjoys the view

With no problems we cleared customs promptly and in the sea of faces outside the airport two were instantly attractive. We were warmly welcomed by Lee Scott and Ted Jenkins who quickly organised our transfer to a luxury hotel. Being a relatively inexperienced overseas traveller the frantic pace of the local traffic was a sobering first up encounter.

Two days into our Bali Experience we were feeling like we had a handle on the scene, although each day had a surprise or two in store. With a little organised chaos we arrived at launch at around 12pm, which allowed time for shopping, brunch and recovery (?). Our group consisted of around 25 hang glider and paraglider pilots of all skill levels. Wind strength generally was at the top end for paragliders,

On arrival in Bali our first thoughts were an immediate, *"Wow, it's hot and humid and smells unfamiliar."*

A little confronting was an apparent overkill of important looking security style officials.

PHOTOS: BOB PRATT

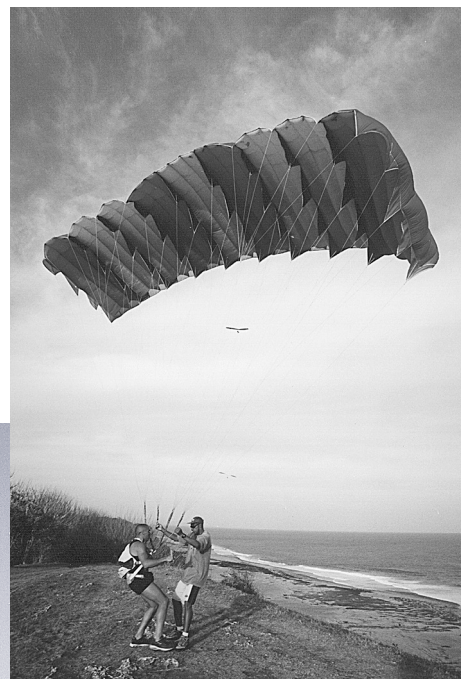
which called for a down slope launch out of the compression zone which in turn highlighted the strengths and weaknesses in launch technique and skill levels. The most common mistake involved pilots fighting the glider, when a few steps up the slope as the wing came overhead subdued it nicely. Another area of debate on the launch styles in strong wind is breaking and steering LKSDFJ straight breaks, cross breaks, C or D risers and others. Maybe a C.F.I. or pilot could give an update on current methods here and overseas as all methods are still being used.

Many pilots lacking recent airtime fine-tuned their skills. With help from Lee and Ted, everybody who needed to improve their skills had it sussed much better by the week's end.

The above comments also applied to top landings. Whilst many were executed nicely, particularly under guidance from Ted Jenkins, others were very sketchy indeed, including impact style, PLF, gift wrapping thorny tree, oscillating approach, way too high, go around again or to the beach. Lee Scott commented, *"Who said coastal flying is boring and less skillful?"*

Crosswind conditions picked up a few notches and made for para-parking on return beats. One area in particular caught out a number of pilots in a real sinkhole. A tandem pilot, who shall remain nameless, and my partner Jill were victims, landing short in the bush. Jill only required a change of underwear, so all ended well.

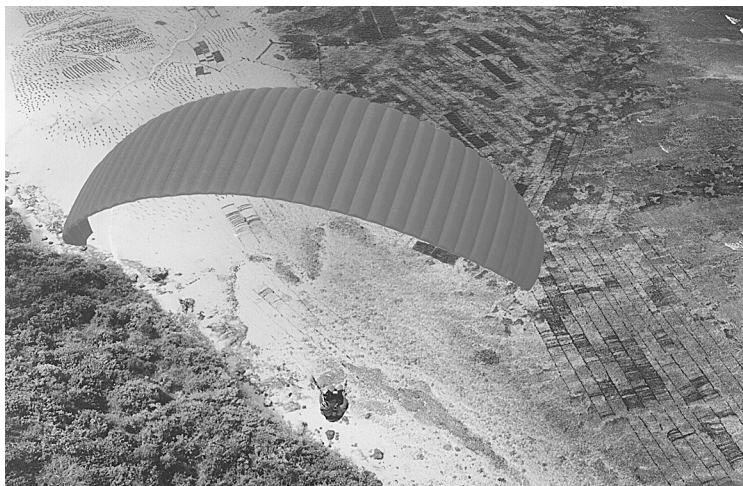
I enjoyed some height and panorama and also low slow returns observing monkeys in temples and trees, workers on the hill face cutting roof thatching and even a cock fight with a large circle of men gambling on the outcome (a national past time in Bali). The ocean and coral reefs never became boring. I used my



Weapon of a wing sighted on the Bali cliffs. After some discussion with Ted, unable to determine make or vintage, we did decide that the sink rate would probably be very ordinary and the harness was pretty dodgy. Just for interest, Can anyone identify this unit?



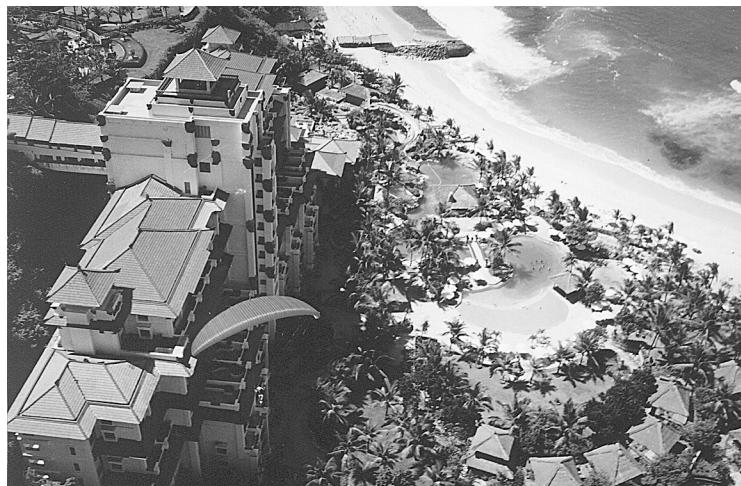
The Bali cliffs



Brett Robinson flies over a seaweed farm

glider's shadow as a marker to point out to other pilots shark and dugong sightings. Low tide created a new range of activities on the reef. There were people harvesting seaweed from a checkerboard pattern of floating rafts. Canoes, snorkelers and fishermen were collecting a variety of marine life and the whole scene was a hive of activity. The narrow coastal strip had small groups of thatched hut villages, small vegie gardens and roaming chickens. All had areas for drying seaweed, which they carry in bundles on their heads up steep, winding, well-worn tracks on the cliff face.

Locals will also pack and carry your glider for two dollars if you find yourself on the beach. All pilots enjoyed soaring the spectacular Nikko Hotel, which is set in the cliff face. After a two hour flight you can land on the beach, have a beer, check out the 'drop dead gorgeous' guests, take a lift up fifteen floors and grab a taxi back to camp to contemplate dinner. Nusa Dua has nice restaurants, but Kuta and Jimbaran Bay have an awesome variety of places to eat. One area has one hundred choices of seafood restaurants with fresh produce cooked before your eyes and served on the beach as you watch the



Soaring Nikko Hotel

sunset over the ocean. "All you can eat" prices range from two to \$12. For non-flying partners Bali has plenty to offer. Shopping, tours, lazing on the beach and free tandem flights were part of the package. Depending on enthusiasm, most pilots achieved five to fifteen hours flying within the eight days. On the negative side, there were some minor stuff-ups with accommodation, and transport to launch could have been organised a little more accommodatingly. Overall I achieved my objectives and had a great time.



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If you want a fabulous Aeros Stalker, Tim Osborn is the guy to contact. You may be the next proud owner in Australia, second only to Hugh Glenn of Tasmania who is currently Australia's only proud Stalker owner. Hugh and Tim give here their thoughts on the glider.



Review: Aeros Stalker

Hugh Glenn writes:

After reading various articles on rigid wing hang gliders, and seeing the performance of the Atos at the 2001 Hay comp, I made the decision that my next glider would be a rigid wing. The light handling and good glide ratio seemed to offset the drawbacks of extra weight and being more fragile.

I had originally planed to get an Atos, but after seeing the Aeros Stalker on the net and reading reports on its performance I decided this might be the way to go. I liked the idea of the ailerons which create lift to turn the glider, rather than the spoilerons utilised by the Atos, Exxtacy and a number of other rigid wings. The leading edge is finished in gloss gellcoat and the trailing edge has a small Alloy tube running its length. The ribs' tension against this gives a tight and even tension to the sail.

Tim Osborn, the Aeros dealer, had test flown the glider the week before I picked it up and he gave me a run down on set up and what differences to expect on the first flight. At the moment I have eight hours on this glider and I am really starting to appreciate just how awesome the thing is. Take off and landings are no problems at all, utilising full flaps to decrease the stall speed and increase manoeuvrability. It takes time to get used to the different handling coming from a flex wing, though at this stage I am already starting to get the glider to do what I want while thermalling.

Due to the control surfaces there is very little physical exertion in flying the glider. On glide is when I think it is most noticeable you are flying a different class of glider – I have found it opens up extra territory I would not normally venture to. The 19:1 glide makes it much easier to cover distance. It is not essential to be a top gun to appreciate the benefits of the Stalker.

Tim Osborn writes:

Before delivering the Stalker to Hugh I had the opportunity to test fly it. Incidentally, this is the first flying on a rigid wing I've done since Jim Zeiset let me have a go on his Exxtacy at the end of the USA Nationals, Dinosaur '98. This will be then through the eyes of a flex wing pilot, not a stiffy.

On launch the glider feels good standing still. When I started running it felt a bit disconnected, but this only lasts momentarily and as soon as a control input is needed whilst running the glider responds quickly. I did practice along the flat first to see what it was going to feel like on launch. This is something I do when flying any different glider. It takes a lot of the surprise out of the initial run.

The wind was zero to three kilometres per hour, ie.: very light (a little lighter than I would have liked). I used the south launch at the Paps Mansfield area. This is not a steep launch, however the glider picked up and flew off as you would expect any other glider to. I was concentrating on not doing the wing walk (not the yaws, but over correcting due to having control surfaces). The first input I did was a right to keep pointing straight out from the hill. This was the first time I had rolled the glider and it responded instantly. I had given it a bit too much so I quickly threw the bar left. The wing instantly rolled left giving me a surprise. Still, this was

enough to figure out how much was too much. When being tipped it is not so important to get on to the correction straight away as the glider responds to roll both in or out without arguing. In flight it took me about 20 minutes or so to get used to the different feeling. With flaps on full the glider feels almost like a normal high performance glider and thermals almost identically. This is not, however, the most efficient. Once I got confident I found that no flaps in larger lift, down to third or half flaps in smaller thermals, was best. You could feel the wing more coordinated with speed on. In most thermals I was doing 48+ km/h. It would slow down more than this, but didn't seem to climb any better. Trim flaps off was 60km/h. I thought if this were my glider I would make that slower by moving the hang point back, but would leave that till more time was done on the wing to make sure. I did not try to see how fast it would go, and because there has been a spin tendency for rigid wings I did not try to spin it. In the configuration it is in you would have to intentionally slow it down a lot to get to minimum speeds. I kept a close eye on thermal speeds, etc and bar pressure. To slow to stall was very positive, ie., it took quite a deliberate act to knock off 10km of air speed unlike a flex wing.

The owner's manual comes with a chart of minimum speeds at certain bank angles and wing loads (this was my datum for flight speeds). As I said, the standard setting does not lend itself to fly this slow, and from my limited experience on this wing it may not be beneficial to boat around like a paraglider. When landing I chose full flaps. This did not kill the glide angle as much as did the flaps on the Exxtacy of JZ's, but it sure killed the energy retention. It was not hard to figure out when to flare, but the physical act was hard due to the solid bar pressure with flaps on full. I am thinking that half to two-thirds flaps would give a longer ground effect, more like the Stealth I am used to. If anyone has any questions regarding this glider, please don't hesitate to contact me at <Osborntim@aol.com>.



Photos: Courtesy Tim Osborn



Feedback

► I would like to congratulate the editorial team and contributors on producing a great magazine. I am pleased with the combined content of the HGFA and GFA. The information shared on the organisational challenges and most importantly the flying and technical articles make me a better informed reader and this is why I value the combined magazine.

I consider that I get good value for money from the magazine. Thank you for your services, keep up the good work.

Scott Barrett

Mt Borah Fatal Accident

► I have some sad news to report and wish to briefly note some details for you all in order to avoid any confusion via media and secondhand information.

A pilot visiting from interstate had a fatal accident at Mt Borah yesterday (22 October, approximately 12:35pm). The pilot was from Tasmania and had been flying for seven years with approximately 35 hours logged. The glider was a DHV1-2 and the harness a mid-90's cross brace design.

The accident was witnessed in full by myself and around six other pilots/students from the launch.

The pilot was ground handling for up to one hour on the Borah north launch in light conditions up the face. The pilot launched into a light cycle. We noted some straps hanging down beneath as he flew past just after he calmly yelled out, "I think I'll just do a sleddie." My initial reaction was no leg loops done up, but with the pilot's calm comments and in-control flying away from the hill I thought it may have been from the large rucksack which was strapped to the back of the harness or perhaps even cross bracing straps that may have not been attached. After doing a right turn towards the paddocks and coming into a side profile view, a few pilots and myself on launch noted that he was hanging lower than what you would expect, but a few minutes later one said that he had been flying in that position for the last few days.

It was apparent from a pilot who was first at the accident scene that the pilot indeed flew WITHOUT his LEG LOOPS done up. I noted later on inspection of the harness that the cross bracing straps were done up tight.

He flew for approximately 10-15 minutes over the flat grazing paddocks in front of launch seemingly in control but in a hang position. This included a sustained spiral dive (with approximately 100m height loss) and numerous turns in the light thermic conditions. The appearance of in-control flying was also noted by another pilot who flew close by a few minutes prior to the accident. The pilot then flew to the NW corner of the paddock (which was bubbling/buoyant) and flew a series of random turns in what looked like either a set up for an approach or finding a thermal at between 50-100m agl. At approximately 40-50m agl the pilot started a right hand turn which quickly developed

into a full negative spin. This continued until approx 5-10m agl where it appeared that the glider started to recover (or was allowed to recover) with a sharp dive. The ensuing pendulum swing resulted in the pilot impacting the ground causing massive internal injuries. According to the ambulance officer later on the scene it was likely that he died on impact.

Two pilots from the east landing area ran approximately one kilometre to assist. They gave CPR for approximately 25 minutes until the ambulance arrived. The pilots, Kevin Chisholm (Manilla) and Brad Tull (Central Coast), should be commended for their actions in performing first aid (including mouth to mouth) under extreme circumstances (massive bleeding).

We are all shocked at the events of yesterday and collectively extend our deepest sympathy to the family and friends of the pilot.

Godfrey Wenness

Mt Borah Fatal Accident

► The fatal accident at Mt. Borah is terrible news. I extend my deepest sympathies to the pilot's family and friends.

I also offer condolences to Godfrey and to the flying community at Manilla. It is deeply saddening to have something like this happen on your home turf.

I would also like to pay tribute to the two pilots, Kevin and Brad, who were first on the scene, and did what they could. Having to do something like this can be traumatic and profoundly affecting.

I'm sure the rest of the Australian flying community are thinking of you all and offering what support we can.

Karl Texler

How Airplanes Really Fly

► I found the article in the October issue on "How Airplanes Really Fly", refreshing indeed.

I agree with the authors that there are a number of commonly held beliefs or concepts of the physical world that are erroneous but continue to be taught. Sometimes this is owing to a lack of knowledge (like the moon gives off silver light), sometimes it is owing to persistence of incorrect knowledge (like boats should be made of wood for wood floats and iron sinks). In either case, simple does not equate to better or even easier. The use of Newton's Laws to provide support to the Physical description of lift over the use of Bernoulli's principle to support the Popular description of lift was a case of proper use of science to enlighten knowledge.

Unfortunately the example provided of the third law was in itself a Popular description and so suffered from exactly what the authors were trying to address in the original conundrum. The text says: "For every action there is an equal and opposite reaction (Third Law)... eg, *"an object sitting on a table exerts a force on the table and the table puts an equal and opposite force on the object to hold it up."* This example, often used, is not an example of



the third law at all, but a special case of the first law where balanced forces (weight and upthrust) result in zero motion. For imagine if the table was not strong enough to hold up the weight of the object and the object fell to the ground where it rested. The action/reaction pairs are not always equal, but then this is NOT an example of the third law, and the action/reaction pair are incorrectly used. Newton's third law is in fact about conservation of momentum and a correct example would be the recoil of a rifle when the bullet shoots forward, or an aircraft thrusting forward when the propeller forces air backwards. The action in each case is object A acting on object B, the reaction is object A going in the opposite direction to object B. A third example, and for this discussion it is critical, would be a wing of an aircraft forcing the air down (the action) whilst the wing is forced up (the reaction, the lift). This third case, with its associated complexities of viscosity and Coanda Effect (as explained in the article) is a good example of Newton's third law. It fully and simply explains the correct Physical description of lift, as proposed by the authors.

John Lever (John is a lecturer in Physical and Computer Sciences at ACU)

Thank You

► I'd like to thank you all for the extensive help I received (and still receive) from fellow hang glider pilots after my landing accident on the first day of the Canungra Classic. You were all such a helpful bunch of people, even if you hardly knew me. I am impressed. I enjoyed the flight, but not the landing. The helicopter flight was good, although would have been even better under less traumatic circumstances.

I thought I'd let you know that the injury involved fractured lateral tibia plateau left leg, which has been fixed with plate and screws, and a few stitches to my face lacerations. All is healing well with knee movements 0-100 degrees (3/11/01), but non-weight bearing for a total of eight weeks.

Once again THANK YOU.

Birgit Svens



A New Club's Success Story

EDWIN GRECH CUMBO

While I was still the Secretary/
Treasurer of the Victorian
Soaring Association (VSA) we
received the articles of
Association of a new club which
was being formed in Northern
Tasmania to ensure affiliation
with VSA and GFA. Later that
period Bob King attended a VSA
meeting and presented the
delegates with
a global picture of what he
was proposing to achieve,
seeking the support of the
RTO Operations and inviting him
to inspect their new operation.



Nick Wood is all smiles after becoming the first Australian Air Force cadet in Northern Tasmania to fly solo in a self-launching glider

At a time when gliding clubs are all concerned with falling membership and lack of volunteers, the determination and effort taken by a few persons in Northern Tasmania must be recognised as an achievement by all concerned.

Historical

Bob King took delivery of a Scheibe SF25B Motorfalke powered by a Stark Stammo 1,500cc VW derived engine, fitted with a manual pull start which belonged to Bob Hare, of Gulgong NSW on 1 July 1997. This was used by the Singapore Air Force, shipped to Australia and bought by Fred Brown, who checked the machine out, recovered it and put on the Australian register. The aircraft was used privately by two syndicate owners.

In Tasmania, the Motorfalke was fully insured and used by other pilots and trainees. It was hoped that the existing club would be able to utilise it to their advantage, however high costs and lack of utilisation did not justify this aircraft in its intended training role. The general decline of many gliding clubs was of major concern and did nothing to encourage any future increase in utilisation.

During a short visit to the United Kingdom, Bob King observed that while clubs talked of similar trends there, as here in Australia, they managed to reverse some of this trend through youth scholarships sponsored by the Duke of Edinburgh and some industries. This, combined with proper promotion and professionalism, resulted in the trend turning towards the positive side. Encouraged by this trend and the offer of youth scholarships by the VSA, Bob King took up Desmond Judge's suggestion to form a club in the north of the state. As the first step towards this goal the Motorfalke was taken to a property known as 'Cranbourn' and trial flights commenced. After several weekends

a formal decision was taken to form a new club in the north of the state to be known as the Gliding Club of Northern Tasmania.

The Birth of a New Club

On 10 May 1999 the inaugural meeting of the Gliding Club of Northern Tasmania was advertised in local papers. Five men attended together with two of their wives. The advertisement did not attract the desired numbers similar to those experienced at inaugural meetings 30 years ago for the formation of a gliding club.

The following 12 months was a painful period of learning, with the Motorfalke's unreliable engine contributing many of the problems. Up to 12-hours-a-week maintenance was required after every weekend. The care required to maintain the engine and warranting no problems when used in a training mode was not achievable. On 12 January 2000, the Stark Stammo engine was removed and a conversion to a Jabiru 2200J engine was carried out. After the usual teething problems were sorted out, the Jabiru engine made an inestimable difference in the Motorfalke's training role. The gain was a reduction in unscheduled maintenance and the reliable and easy starting under all conditions, and in the air. Now, whenever it is required it is up and running without any delays. This significant difference meant that the club can now reliably make bookings, knowing they can be kept.

The annual general meeting held on 15 June 2000 had minimal attendance once again. However, a Level 3 Instructor, attended the meeting and joined the club. This resulted in the club's ability to offer ab-initio and advanced training to all its members. Slow but steady progress was made with training students, old and young alike during that year.

Outcomes

Evan Andrews, who was trained by Graeme Vertigan in Tasmania and was the club's most promising student, gained his AEI rating at Waikerie. Both Evan and Graeme went to Waikerie last year to enhance Evan's experience and to obtain single-seat and aerotow endorsements Graeme trained Evan in the Motorfalke for his Level 1 Instructor rating. They will both return to Waikerie this month to conduct a series of cross-country tasks and for Evan to be examined by the local Level 3 Instructor, Bill Mudge. The increased demand from visitors and persons seeking AEFs and memberships would certainly support another instructor.

Bob King ran a week's training course at Woodbury, which opened up a continuous contact with the Air Force cadets resulting in an invitation to take the Motorfalke to their annual camp. The Air Training Corp offered two scholarships to cadets to allow them full train-

ing to reach solo status with this club. The first of these cadets went solo on 25 August 2001, on his 15th birthday.

The club now operates regular training programs using the Motorfalke on a scheduled timetable for each ab-initio trainee. The utilisation and demand has now reached optimum level. Currently, the Gliding Club of Northern Tasmania is considering the expansion of their fleet.

Lessons Learnt

The club learnt several lessons on how to promote and practice their sport.

Professionalism:

It became obvious during the early stages that no club could get away with what used to occur years ago. If members do not get the service they expect, they either give up or go elsewhere. This includes:

- how the club is run,
- glider maintenance – the gliders and equipment must be in top working condition when and where required,
- operational – instructors available when required, helpers – available to permit a smooth operation.

Punctuality:

Operations need to commence by not later than 10:30am. Preferably, gliders are already in the air by this time.

Service:

Clubs can book times for people wanting to fly or, very particularly, want to learn to fly, with 90% confidence that times and flight durations are fully met.

Promotional:

In the way of advertising and display leaflets.

Conclusion

It has taken some three years for the acceptance of cadet training to reach this stage. The Air Training Corp made it clear that they were testing the club's ability to deliver its claims and would continue to give a reliable service. If this is demonstrated then the club can expect some more solid backing.

Small clubs can query how this can be achieved when one thinks of the back-up needed to a successful winching operation – usually the only launch method open to a small club. This brings in the Motorfalke or a similar self-launching glider. I think many overseas clubs have proved this is indeed an effective method of training, and a system that can be used by a small club. What they have observed is that if the aircraft is used strictly as a glider with the engine treated as a separate means of launching, like aerotow or a winch, then transfer to a 'pure' glider is transparent.

The GFA needs to consider some form of publication to cover this form of training. Fortunately, Derek Piggott has written a superb series of articles on training in the Motorfalke.

The engine replacement has gone a long way to overcoming engine reliability problems, the Motorfalke is sitting there, just waiting to be used, with virtually no unexpected hold-ups. The higher power that the engine outputs gives significant operational advantages. Climb to training height is fast. It is claimed that in Tasmania it is often too turbulent to do any ab initio training, however their inversion layer is usually at 2,500 to 3,000ft. (Tough luck about strong thermals). I am told that above the inversion layer it is amazingly smooth, so ab initios can go to as high as 6,500ft amsl and have superb training conditions with the engine off for up to 3,500ft. The club claims that this mode of operation costs less than winching, and much less than aerotow.

From observations made by myself and others, it is becoming increasingly impossible to form a club in the time-honoured fashion. Should we consider forming hybrid 'commercial clubs' such as those formed by ultralight clubs?

In the case of the Gliding Club of Northern Tasmania, the atmosphere is one of liveliness and keenness with a lot of initiative and creativity being shown, all of which indicates it is at last starting to become a viable growing club meaning to go somewhere.



Graeme Vertigan (L3),
Bob King (CFI) and
Nick Wood

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GODDEN Graham Russell	10492	Lake Keepit
COLLIER Brett Andrew	10537	Adelaide UNI
DOMAN James Alastair	10560	Adelaide
SLATER Christopher John	10546	NSW AIR TC
CAMPBELL Sean Colin	10534	NSW AIR TC
VINCENT Geoffrey Edward	10585	Mangalore
HUGHES Peter David	10590	Darling Downs
DAVIES Nigel Thomas	10302	Narrogen
THOMPSON Denis Alan	10581	Lake Keepit
WATSON John Howard	10341	NSW AIR TC
SCHARTAU Phillip Wolfgang	10549	Narrogen
BOWMAN Scott	10584	Wagga/Lockhart
WEGEMUNO Cameron	10589	Byron Bay
BARKER Andrew Craig	4368	Darling Downs
FLOCKHART Douglas Graeme	4369	Kingaroy
MAGUIRE Jeffrey Robert	4370	Lake Keepit
MAY Stewart	200/6568	Canberra



The First Junior Coaching Program

TERRY CUBLEY

With the introduction of a junior coaching program into our sport, my mind turned to a very positive experience that I had in my earlier days. The title of this article is probably quite misleading. The people involved generally didn't fit into the current definition of Junior – I was 27 years old and the majority would have been in the 25 to 30-year-old age group with a couple in their mid-30s. It was the first program that I know of but there may well have been something in the previous 30-year history of the GFA, although I doubt it.

This was a GFA initiative and each state was asked to nominate up to two people. The process was obviously successful because of the eight that attended, four went on to compete in world championships including one becoming world champion, one other competed for Australia in the Tasman trophy against New Zealand, and the others were avid competitors in State and National championships for many years ahead.

I recently found my notes from the training camp and then looked up the September 1980 edition of AG for the article that I wrote at that time. I thought I would include some of that article along with a couple of additional comments (in italics) on what was learned and how this may relate to current thinking on junior development.

International Coaching Week - Tocumwal, Monday 17 to Friday 21 March 1980 (Australian Gliding Magazine - September 1980)

Coach: Ingo Renner.

Students: T Cubley, J Goodley (VIC); B Edwards (NSW); R Ward (QLD); P. Goodale (SA); J. Welsh, N. Bloch (WA); Bruce Brockhoff (VIC)

The general program consisted of lectures from 9 to 11:45 am and then flying from 1 pm. The weather was pleasant all week and contests were flown on every day except the Friday when some experiments were performed.

The gliders present were a Caproni two-seater, flown by Ingo and one of the other pilots, a Hornet, Libelle, Standard Cirrus, Pik 20D, Pik 20B, LESS, Lisa, DG200. Water was not carried, primarily to save time on aircraft preparation.

Monday:

The initial discussion included a report by Ingo on moves overseas to re-introduce distance tasks, (Cat's Cradles, yo-yo and pilot selected turn-points). The Scandinavian countries were pushing for short, speed tasks with those pilots who land-out receiving zero points. The general consensus of those present was that these two extremes should not be introduced as the present situation seems to be working quite well.

Discussion then ensued on why some pilots are better than others with regard to racing. It was suggested that all pilots need some sort of priority list, indicating weaknesses and strengths. It was anticipated that various aspects of speed flying would be introduced during the next few sessions and following this it would then be possible to construct such a priority list.

The session ended by each pilot explaining his thermalling and speed flying techniques – not an easy thing to explain. There was quite a variation, especially in the speed flying techniques, with the major point being that hardly anybody follows the McCready ring precisely.

That afternoon a short task was set – an out and return to Corowa Aerodrome, 140km. Two to three knots to 2,500ft was the order of the day with the occasional five knots to 3,200ft. There was one fire on the way home which some people connected with, giving 10kt to 5,000ft in one instance.

Times were fairly close. The only outlanding being Norm Bloch in his first flight in the Libelle.

The start was the same as that in the Smirnoff Derby with all competitors forming one circle and then one person saying 'go'. First across the finish line wins.

This had one major advantage for the course. Pilots could watch each other very closely, see immediately what mistakes were made, and gave the opportunity to try something new and see if it worked.

Obviously an influence on my thinking in developing the Grand Prix competition in recent years.

Tuesday:

Speeds to fly. There are three separate areas when considering speed to fly. These are the speeds to fly when aiming for

- a) *Best cross-country speed*
- b) *Maximum range*
- c) *Maximum rate of climb*

Discussion ensued on some of the things which affect the above. The polar curve varies with wing loading, g-loading, bugs, water, altitude, instrumentation.

The instrumentation errors and altitude errors can give up to 10 to 20% error, so following the McCready ring religiously is probably no more accurate, even less accurate, than following some sort of speed table.

The speed director and speed ring is no longer treated the same as in 1980. More constant speeds is used.

Finally a more thorough talk on tactics at turning points and speeds to fly when turning downwind and upwind.

The weather was the best expected for the week so a 300km out and return to The Rock was set. Thermals were moderate to 4,500ft to 5,000ft but became weak very quickly on the last leg. One fire on track went to 7,000ft at over 10kt but Bob Ward went to one fire and flew for five minutes at 1,000ft as they did back-burns. He then landed just as they finally lit the main fire. Peter Goodale stayed clear of everyone else and managed to get good climbs all day, but no fires.

Wednesday:

Turning point tactics were discussed further and, as there was a reasonably strong wind, it was anticipated that the various tactics would be tried.

The major topic for discussion was the effect of wind, the major point being that the thermal does not drift as quickly as the normal wind velocity. An experiment was planned to check this on the next windy day (see Friday).

The general result of this reduced speed of thermals is that to optimise speed on a task, the inter-thermal speed must be adjusted depending on whether flying upwind or downwind, contrary to old beliefs.

You can fly slower whilst going downwind because you are catching the thermals. Going into wind you should fly a little faster.

Flying for the day was planned to give practice at turning point techniques twice around the quadrilateral, Tocumwal-Mt Boomanoomana-Berrigan-Finley-Tocumwal was set, two by 96km. As it was, the day started off badly and got worse, so we modified to once around the course.

Maximum height for the day was 2,500ft, good lift of four to five knots was found on the second leg but became quite weak on the third leg through the irrigation. The strong, cold wind, 20kt from the south-west, made things quite slow on the last leg for the lower performance aircraft. The winners for the day managed to get one good climb at the last turn to 3,200ft and so final glided while the remainder had a slow tour of the local sights. John Goodley had a much closer look than everyone else.

Having a specific training goal for a task is very important. Even if the weather is not great you can still learn some valuable lessons. In this case we had to adjust our height band to turn as 'low as you dare' at the upwind turnpoints. The gains are quite significant.

Thursday:

A little more discussion on thermals leaning and wind profiles.

A large number of small topics were discussed today. These included: speed ring settings – you should set the ring at the rate of climb achieved in the last few turns of the last thermal and expected in first few turns in the next thermal.

Do not force glider into dolphin soaring by flying slower. The effects of not flying at the 'correct speed' showed a minimal loss with a 20kt or more variation in speed.

The day looked good with expected strong lift from 7,500ft to 10,000ft, so a task was set.

Tocumwal-Urana-Jerilderie-Tocumwal, 186km. Maximum thermal height was about 2,700ft. The day was a struggle. Those who managed to struggle past Jerilderie reached a fire which got them home. Bruce Brockhoff flew along the highway at about 1,000ft for a couple of kilometres (heat off the road) and then hit three to four knots which gave him enough height to reach the fire. Peter Goodale reached the fire at about 400ft and disappeared into the smoke to reappear at over 3,200ft.

Terry Cubley and Bob Ward both landed just after Jerilderie. John Welsh and Norm Bloch turned short on the second leg and landed close to Tocumwal.

Friday:

Optimising the rate of climb in thermals is one topic which interested everyone. The main idea here seemed to be the correct use of g-loading in centering – increase +g when tightening, decrease g when straightening. Once in the core you should fly as smoothly as possible.

The last thing for the week was to construct a list of the various sections of a cross-country competition flight and then to place some sort of priority on these things for each individual pilot so he knows what to concentrate on.

The list is written below with an average priority listing for the group. Each pilot will vary this rating.

1. *Met navigation (finding thermals, etc)*
2. *Tactical decisions*
3. *Pilot preparation*
4. *Aircraft preparation*
5. *Navigation*
6. *Turning point techniques*
7. *Speed to fly techniques*
8. *Thermal technique*

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9. Speed settings

10. Final glide procedure

11. Gaggle flying techniques

12. Ridge and wave soaring techniques

No task was set. Bob, Brad and Peter flew in the Caproni with Ingo (not all at once) while Terry, Bruce and John tried the experiment thought of on the Wednesday.

The wind was quite strong, 25kt, thermals were the best for the week, up to about 9,000ft.

The three doing the experiment located a thermal then as one remained in the thermal, with brakes open to maintain the same height as the other two, the others flew out crosswind, one on either side, and commenced circling in sink. Initially the three were in line. After about four minutes of circling there was a definite displacement – the two on the outside being about a quarter-of-a-mile downwind of the one in the thermal (the quarter-of-a-mile is an estimate of the author). This was repeated three or four times and each time the result was the same, proving that the thermal does not drift as quickly as the general wind.

Looking back, this program certainly gave my gliding performance a definite kick in the right direction. The program was structured but relaxed with ample opportunity to discuss and share in a non-threatening environment. Getting the discipline to set training tasks/goals for each flight, being prepared to experiment and test some of the common theory, looking at the theoretical and technical aspects of the sport certainly puts much of what we do into perspective.

Much of what we learnt is still current but there were some things that are no longer relevant or correct. However, the process is still as valid now as it was 21 years ago.



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2001 HGFA Board Nominees

Stephen Bayley, Tasmania

I am an active hang glider pilot (advanced), who has participated at a grassroots level of our sport. I have been involved in the Tasmanian Hang Gliding Association as the Treasurer/Secretary for the last three years. More importantly I am actively involved promoting and progressing our sport in Tasmania as well as assisting others on the hill or in the paddock to get safely airborne and into our challenging sport. I have been fortunate to fly in three states both free flying and as a competitor in hang gliding competitions.

I am able to offer highly developed financial and managerial skills from a business background which spans a number of managerial positions in various successful organisations. I presently work for a chartered accounting firm as a Senior Manager.

I believe that with my insight and knowledge of our sport coupled with my business experience, I can make a valuable contribution to our sport at the HGFA Board level. I understand the wants and needs of pilots, understand the business perspective and realise that we all need to move forward together to benefit all participants in our sport.

I see a positive future for our sport but one that requires hard work to continue to build and improve our position in the aviation sphere so as to achieve the goals for the benefit of the members. I have the commitment, the ability and the support of fellow pilots in this offer to serve on the HGFA Board.

Rohan Holtkamp, Victoria

Age: 37 years

Family status: Married to Sandra. We have three children – Melinda (10), Glen (8) and Michael (3).

Employment: I am one of four Directors of Dynamic Flight Pty Ltd, a hang gliding training facility based in Western Victoria of which I am CFI. Dynamic Flight also has a harness manufacturing division where I spend some of my time working with the machinists on the harnesses.

Hobbies/interests: I enjoy spending as much time with my family as is possible, encouraging and supporting them with their hobbies and interests. I also like to blow the cobwebs away every now-and-then on a road bike. My main hobby though would have to be hang gliding. **Experience:** I have been flying hang gliders since the mid-80s, starting in a rigid wing glider and then later changing to a flex wing glider. I began flying in competitions within 12 months of taking up the sport and continue to fly in as

many competitions as possible during the year both in Australia and overseas.

HGFA Board: Being an instructor I am in contact with pilots of all experiences from the grassroots level through to advanced pilots. I also have regular contact with the international pilots who attend competitions here in Australia and also when I am overseas. I am a current HGFA Board member and have been a member for the past three years.

I am prepared to take on the roles and responsibilities associated with being a member of the Board for the upcoming 24 months.

Mark Howard, Victoria

Background: I am 50 years of age, married to Jeanene with two children, Katie and Andrew. Six years ago I was introduced to the joy of flying a trike and have been actively flying since then. To improve my general skills I am also doing GA training.

About four years ago, Jeanene and I saw the need to develop the trike community, as we had met a number of trike pilots around Victoria who were looking to do more flying with other pilots. To further the need we started up the Southern Trike Club and through the club our trike pilots have introduced improved training, trike activities (such as the National Fly-in) and social occasions for club members and their families.

The club has become an extension of the HGFA goals and I would like to be part of improving the HGFA for all flying disciplines. **Skills:** Initially I trained as an electronic engineer and have fulfilled management roles in engineering and project management. Most of my work now is in large system projects and start up companies such as Fly Buys, QLD Lotteries and new systems for Telstra and Australia Post. With this training and experience I feel that I can bring to the HGFA, in conjunction with the other Board members, the “big picture” perspective that is needed to move our organisation forward.

Vision: My vision is really about the ability to fly, fly with other pilots from all interests, fly safely and to see our sport grow. I see growth in several areas:

- *More HGFA pilots, so what we have as a group is maintained. In some ways our aircraft are unique and so are the skills to fly them. If we are to keep our place in the overall flying community we need a voice and this voice must be based on members.*
- *A greater involvement with other pilots and disciplines. People who understand and respect what you do become your allies*

and the flying community needs to develop together. An example was the amalgamation proposal with the GFA. I feel even the initial steps has taught us a lot more of how we can share the sky.

- *Committing to the sport. As with the Trike Club unless we personally make the effort not much will happen, so I wish to add my effort to ensure our future in the sport is protected.*

Nigel Lelean, New South Wales

Age: 38 years

Residence: Lake Cathie, Mid North Coast, NSW

Occupation: TV Cameraman/Photographer

Family status: Married with two sons (two-year-old and four months)

Club: President of Mid North Coast Hang Gliding and Paragliding Club

Nominating for the HGFA Board because:

I feel that by becoming a Board member I can bring fresh ideas and a new perspective to the Federation and, most importantly, a positive approach to future decision making.

I have been flying for 10 years and am a qualified hang gliding and paragliding instructor. I also fly microlights which gives me an overall understanding and appreciation of all three disciplines.

I would come to the Board with no “axe to grind” – no hidden agendas or strong opinions. My main objective if elected to the Board would be to bring the membership closer to the HGFA.

In recent years we have seen a lot of changes to the way we operate with increased regulation and accountability and find ourselves dealing with more bureaucracies.

I feel that through this period of change the HGFA may have appeared to have lost touch with some of its membership and may have become too distanced from its members.

I want to see a continuation of the positive achievements of previous Boards but I would also like to bring about greater communication between the members and the Board.

Through my experience working in the media I am also aware of the importance of projecting a positive image of our sport and taking advantage of opportunities to increase our profile.

I also feel it is important that we continue to provide excellent teaching and ongoing support to new pilots and endeavour to make it as easy as possible for students to enter the sport.

I look forward to the opportunity to discuss my nomination with any members who may wish to contact me.

Nigel Lelean

Keith Lush, Western Australia

I am a West Australian pilot who has been into hang gliding for around 17 years. Time sure flies when you're having fun. Those who know me personally will know how many years I have been involved in the management of the sport in WA and more recently at a board level. They will also know of the achievements I have made in the area of site retention, CALM and Local Government relationships, safety initiatives, financial management and image promotion of hang gliding in WA.

I have the following goals for the sport in WA and these flow through to HGFA.

- To promote all disciplines of weightshift free flight
- To increase membership numbers
- To improve facilities
- To assist schools
- To build up the clubs
- To keep pilots out of hospital or the morgue
- To retain fun in our flying

I offer the following: I am the State Manager of a large multinational high-tech corporation specialising in the computer industry. I am responsible for my branch and the people who work for me and for building on the annual revenue of around \$10,000,000 that we are at today. I offer management experience, marketing experience, financial skills and knowledge of how to run a business.

I have an ambition to see weightshift free flight realise its potential in this country more than most people might imagine was possible. And I have this inherent dislike of illogical regulations that are imposed just for the sake of keeping regulators in a job. I believe that pilots who want to fly, be it competitively or for leisure, should be able to do so. Let the HGFA or the state bodies deal with beating away the ever increasing threats from the litigators and the bureaucrats.

One more point. I am not afraid to publish what I believe and follow through but at the same time, I do listen to others who are just as passionate about what they believe to be right. While I will speak up if I think something is not quite right or in fact just plain old bulldust, I respect peoples right to be the same way with me in return. And I won't quit because I don't get my own way or it all gets too hard.

The one thing I ask with this election is for every member to cast a thoughtful vote. Let's try and achieve a very high voter turnout.

Bill Moyes, New South Wales

HGFA Life member

I offer my services as a Board member representing NSW. I began flying in December 1966 and worked with John Dickenson on the first ski wing. I began building hang glider wings in 1967 and I continue today, including ski-plane, ultralights, gliders and trikes.

Records: I set seven World records and two Australian records between 1966 and 1975 and served on CIVL from 1975 until 1986. I was President of the Australian Kite Flyers Club for three years, I am currently President of the NSW Association (two years) and have previously been HGFA President for two years.

List of Awards:

- | | |
|------|---|
| 1977 | Queen Elizabeth Medal Silver Medal |
| 1978 | Russian Aero Club Bronze Medal |
| 1980 | Royal Australian Aero Club Oswald Watt Gold Medal |
| 1980 | NSW Hall of Champions Plaque |
| 1982 | NSW Government Advance Australia Award |
| 1983 | C.I.V.L. Diploma of Honour |
| 1992 | Australian Sports Hall of Fame Associate Member |
| 1995 | NASA Space Technology Hall of Fame |
| 1995 | Smithsonian Institute Invention Award |
| 1998 | Medal of the Order of Australia OAM |

It is obvious that I have an interest in the sport and its future and would like to see it well managed.

John Reynoldson, Victoria

As a current Board member, I hesitate to put my hand up for another term, given the amount of flack the Board weathers despite the best of intentions. Nevertheless, I've been convinced to give it another go, or at least until and unless the rate of hair loss becomes excessive.

It's been a turbulent two years. With Ian Jarman's resignation, the office restructure, several fatalities, insurance hikes, Board resignations over Skysailor amongst other things, the Board has forced to be reactive rather than proactive over the last term. Most of these challenges are still with us, and sadly we are may be fighting fires more often than exploring initiatives over the next two years as well, especially in the insurance arena.

But we can only try.

In my opinion, one top priority in the next two years is to look again at restructuring the office to make us less vulnerable. We have far too few people in possession of the knowledge needed to keep the Federation functioning at an operational level, and little built-in functional redundancy. A careful analysis of the job roles and financing is required. This doesn't sound very exciting, but it has to be done.

I am in favour of continuing the joint magazine, but am mindful that many of our members, and many GFA members simply don't want the information on other disciplines. I am in favour of exploring ways of providing tailored content via alternative means and technologies. This may mean both web and email distribution as well as possible club involvement in magazine content distribution.

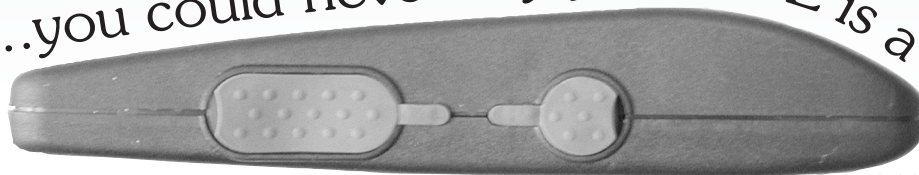
I have worked to increase the visibility of the sport in the public eye to increase recruit-

every little bit counts.

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- -A option with built-in ASI
- -E option built-in GPS
- Fully upgradeable



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ment. The *Pacific Flyer* "Flying Start" magazine which features our sports was initiated by me, and kindly followed up on by the crew at *Pacific Flyer*. It has been a "win-win" strategy for all the sports aviation bodies participating. I have also been an active participant in getting the new web site up to speed, by keeping the Skysailor content up to date.

I have been hang gliding since 1975, and triking as well since 1984. I currently fly a Fun as well as a Shark hang glider, with or without my Thistledown soaring trike attached. I also have a conventional Chaser trike which doesn't get as much use now that I do a lot of power-launched soaring in the Thistledown. I run a business, Raptor Designs, which manufactures communications gear for the light sports aviation industry. See [www.aerialpursuits.com] for more information!

Jules Sanderson, New South Wales

I am Jules Sanderson I have had an addiction to flying and aircraft since I can remember. I started flying hang gliders on the South Downs in England about 20 years ago with *Free Flight* under Eddie Billous. I worked as an aircraft engineer on Solent, Tyne, Garret, Allison T55 and Textron T50 for some time.

I migrated to Australia as a mechanic and what follows are my achievements in this time. Since arriving in Oz I have opened four new sites, reopened one (two are suitable for hang gliders), been the first to fly a paraglider off the Gillies Range, Dobroyd Head and Whale Beach (the old take-off in the Jehovah White-ness Hall).

I have assisted running one, and run the paragliding side of two, State fly-ins. I have helped start a cell of paragliding on the Capricorn Coast opening three new sites. I have been endorsed as a hang glider pilot with Chuck Connor, something I started before paragliding but never finished and have built my confidence up into flying an old Magic 4.

With Mikkel Terren I have developed a training program and a vehicle for the disabled to participate in our sport. I have also taught students ab initio from 13 years to 60+, in excess of 20 people. In between I have developed winch systems, maintained a couple and started a winch set up for paragliders at Marulan South. I have been to all instructor conferences/clinics since my arrival and volunteered my assistance in both. I am the Paragliding representative for the NSW Association and have volunteered to liaise with Parks and Wildlife and offered my services as a ranger. I have given paid expert witness statements in three court cases in favour of the HGFA, although solicited by the litigant in two.

I have pulled 11 people out of trees and given a practical tree rescue clinics. I have pulled two out of the water and given a paraglider water landing clinic. With a handful of others I have

consistently maintained and improved Bald Hill and three other sites. I have shown that thermic inland flights are achievable from Bald Hill.

I have had an accidental tandem reserve deployment and brought the aircraft down to a safe landing, the only one I know of in Australia. I have picked up the game of all paraglider pilots who fly the hill whether by instruction or example or in an advisory capacity and given a restricted to intermediate series of lectures. I have run the Lawrence Hargrave 2000 comp and am organising the 2001. I have been the experienced club pilot in all but three club fly-aways, Corryong twice and Tumut six times. I personally designed, constructed and installed signage for Bald Hill. I have a current First Aid course and Advanced Resuscitation to give those around me the best chance!

Not bad for three years. But my work is not done. I have shown what I am by my actions and I hear I am well respected in my area. I have not the time to show all of you throughout the country my metal but I will be doing the comp circuit this year so watch and make your own first hand judgements.

I would be more than happy to speak with any of you, or if in the area to make contact and show you exactly what I and others have achieved and give you an idea of what we can hope to achieve. I am keen to build the sport to a potential I feel it is way short of in comparison to the rest of the first world, take Switzerland the participation appears as an integer of a percentage.

I am witnessing a decline in pilots and sites all over the country. I have seen ramps broken – vandalised with no apparent local interest, there seems to be a huge gap from the pioneers to the regulars, like the parents have gone out and left the kids without a babysitter it was from these "parents" that I learnt so much.

I would like the opportunity to change the way the sport is regulated from inside by standing for election to the board and or the safety committee. My profession as a commercial diver stands me in good stead as it is also about how to minimise risk in a potentially lethal environment. I am sure that none of you will deny this last year has seen some horrific events. I'm convinced you all will admit things could be done better.

My vision is for everybody to feel that they are part of the HGFA to stop it being used by those with commercial interests as a way of restricting competition and focus on the important issues like safety cooperation site maintenance and promotion. I would also like for all members no matter how experienced to feel that they have a say in the running of our Association.

My skills are practical, analytical and academic. I have some IT skills but still get the feeling there is more to learn.

Respectfully yours, Jules Sanderson

Mark Thompson

Introduction

I seek your support for the position of HGFA Board member, as I would like to be involved in the direction that the HGFA takes, and ensure that it aligns itself with what the membership wants.

Flying Vision

My vision for flying hasn't changed over the years but has been enriched by the people I've met and trained and the flights that I have had.

My vision comprise three principles that I believe we all share:

- *To be able to fly safely and effectively in the limited spare time that we have*
- *To inspire and be inspired by other pilots*
- *To have a means of sharing new ideas and experiences between all pilots in Australia*

My Vision for the HGFA

My role when elected to the HGFA Board is to realise these three principles.

I want us to be able to fly in a safe environment in which we take off and land safely every time. The HGFA Board is in a position to make a significant contribution to the safety of our sport through pilot training, the pilot rating system and the culture of the sport.

I want us to be able to share our flying experiences with others. The satisfaction of competing with mates and sharing stories of flying over a beer is often as satisfying as the flight itself. The HGFA Board is in a position to contribute towards the continuing growth of our sport through enticing new pilots, but more importantly maintaining the existing member base.

I want us to be able to read about our new products, competitions, flights, the weather and flying techniques. At the present time the HGFA provides us with the Skysailor. I believe this has been through some rough times, but continues to serve us well. I would look to explore other options of making more use of the internet as a form of communication to members.

Background

Flying is my passion and provides me with the biggest three-dimensional backyard of anybody I know. I have been flying over 10 years and still learn with every take off and landing.

In this time I have been an instructor, a club president, a competition director and of course a novice pilot. I have recently set up the National CMAC Cross-Country League which finished its first season with pilots competing nationally.

Board Skills

My understanding of the HGFA Board is similar to that of a business in which you, the shareholders, entrust the board members to steer the business of flying for the common good of all members.

I believe my business skills derived from 10 years experience in the commercial sector will

allow me to provide input and leadership to my fellow board members.

Regards, Mark Thompson

Robert Woodward, South Australia

We are all members of HGFA. We are all collectively and individually, HGFA. If we surfed or went scuba diving chances are we wouldn't be members of any organisation notwithstanding the fact that all these sports operate in an alien environment, not known for being forgiving of mistakes. The fact is, we operate in the air and as such are subject to not only the laws of aviation, but also the laws of the land.

A long time ago when our sport was in its formative years and information was passed by word of mouth, we shared our stories and ideas and the oldest pilots were the source of answers to our questions. As the sport developed, we understood more through our many and collective experiences, we explored sites, devised rating systems negotiated airspace with the man and organised ourselves into more formal decision making structures.

We now have all the trappings of a you beaut bureaucracy and I know that irks a lot of people. Not because it stops them flying but sometimes its decisions sometimes upsets them.

I think we may have got to the point where the systems that have been developed over time are adequate for our purposes, if, as pilots we choose to avail ourselves of them. In fact, I am coming round to the idea that HGFA actually starts to do less things, but better!

Flying is and always has been the responsibility of those who partake in it. I think that the organisation has a responsibility to ensure that the people who want to learn the sport can do so from Certified trainers. However once pilots leave the schools they need to understand their limitations and rely on the senior pilots in the area for guidance, which is what happened years ago, only now at least there are many other sources for information available.

I suggest that most of the mistakes that could be made, have already been made and each of us has a responsibility to first, ensure we always fly so that we don't kill ourselves and secondly promote that idea in everyone else we come in contact with.

Because the bottom line is that there is no one out there that wants to perform CPR on their mate and it seems to me that safety can die just as easily through the death of a thousand cuts as through one catastrophic event.

The power to change that is in your hands not HGFA.

Regards, Woody

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Phone: 0412 617 216 or (a.h) 03 - 9818 7650

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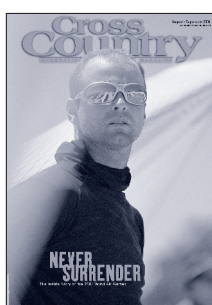
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KEVIN RODEN

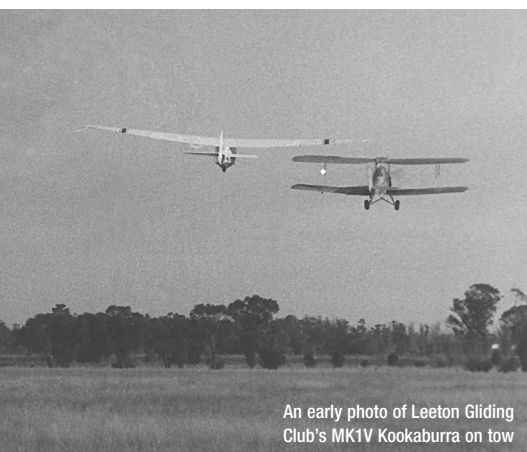
February 2002 marks the
30th Anniversary of Leeton
Gliding Club's inception.



Leeton Gliding Club clubhouse
and hangars, December 1984



The NSW Inter-service competition hosted
by the Leeton Gliding Club, January 1999



An early photo of Leeton Gliding
Club's MK1V Kookaburra on tow

PHOTOS: COURTESY KEVIN
RODEN

Leeton Gliding Club has successfully operated since its inception in February 1972. The club has enjoyed some very prosperous years with membership exceeding 50, and endured some very trying times with membership falling below 20.

The club has been fortunate in that it has hosted competitions and club camps almost every summer. These included the NSW State Open, Standard and 15m, the inaugural Sports Class competition, FAI Nationals and Inter-service competitions.

On the weekend of 12 and 13 January 2002 it is planned to have a reunion of previous club members and the many pilots who have flown at Leeton. It is planned to have a flying weekend with a dinner on the Saturday night for all those interested. Visiting pilots are encouraged to attend and renew old acquaintances and visiting aircraft are welcome with winch and, hopefully, aerotow.

This event is immediately following the inter-service competition which will finish on Friday, 11 January 2002.

Anyone interested in attending can contact John Thurgate on (02) 6953 3873 or visit [www.pme.net.au/reunion.html].

A Brief History of the Club

In February 1973 the Wagga Gliding Club bought its fleet of gliders and a tug to the Leeton airfield to demonstrate gliding, and take interested locals for a fly. The weekend was

a success and later that same month a public meeting was held and a committee formed.

In April 1973 an ES-52 Kookaburra was purchased from the Geelong Gliding Club for \$3,300. Over the next few months members, with the assistance of local business, built a hangar and winch.

Several members visited Wagga and Forbes Gliding Clubs where they gained valuable knowledge and ideas. The Leeton Shire Council gave permission for the use of the local aerodrome and has always supported the club.

On 14 October 1973 the club held its first flying day, with Phil Muller of Temora filling the role of CFI. Twenty-two launches were completed, for two hours and 37 minutes of flying, with several members experiencing their first flight in a glider. Flying fees were 70 cents per winch and nine cents per minute.

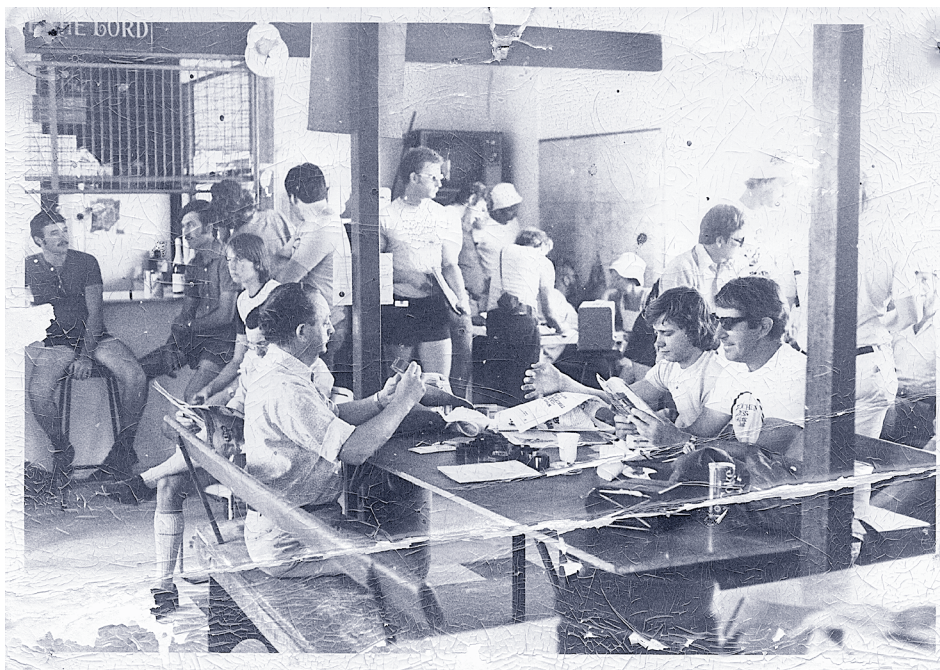
The next five years saw the club grow at an exceptional rate. In 1974 Glen McWilliam purchased a Blanik, and in 1975 several club members paid in debentures for the purchase of a Club Libelle. In 1978 Alf Hermann purchased a K7 which was available for club use. All these gliders were bought by the club over the ensuing years.

The period 1978 to 1984 saw the club at its peak, with four private gliders – a Cirrus, Ka6E, Astir CS and Astir 77. The fleet based at Leeton now consisted of eight gliders.

Early in 1984 the Blanik was written off in an unfortunate accident, and was replaced



Do you recognise any of these pilots in this old photograph taken in the Leeton Gliding Club's clubhouse?



Pilots at briefing during Leeton Gliding Club's 1975 competition

with an IS-28. The years 1984 to 1988 saw the club in a period of decline with membership and flying activities falling to a minimum. Activities in the club are again improving, with each year showing an increase in members and flying activity.

Club members, requiring a clubhouse, acquired a building and re-erected it on the aerodrome. This converted church served from January 1974 until October 1981 when a severe storm launched the roof of the building and destroyed the clubhouse completely. Members managed to rebuild the clubhouse over the next few months and by the start of the 1982 national sports and two-seater championships in January 1982, a new air-conditioned clubhouse was complete.

In 1996 a Hornet was purchased to replace the Club Libelle which was tragically written off.

Throughout the club's history competitions

or club camps have featured almost every summer, and most certainly helped the club prosper. The club hosted the 1985 national FAI championships, several NSW State championships, numerous State and National Sport Class championships, and more recently the inter-service championships.

The 1975 State championships were held at Leeton, less than 18 months after the club started operating.

The club continues to operate every Sunday at Brobenah Airfield, 10km north of Leeton. Facilities at the aerodrome consist of an air-conditioned clubhouse, hangar and amenities block with toilets, showers and workshop.

There are currently 11 members. The club's fleet now consists of Hornet and IS-28 and a K7 which is not being flown.

Further information can be obtained from Kevin Roden (02) 6962 7411.



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Balaklava Gliding Club's ASK21

Spin kit approved for ASK 21 Trainer

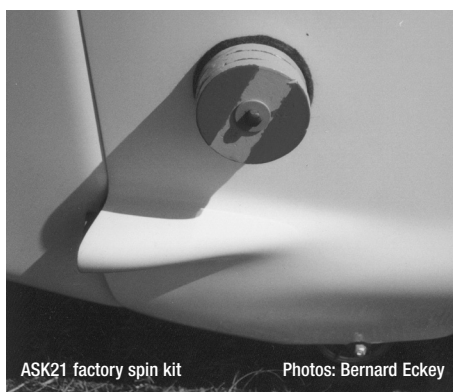
JOHN WHEATCROFT

In 1996 the Balaklava Gliding Club embarked on a modernisation project of their two-seater fleet. Over a period of some four years the club gradually replaced their Blaniks with modern fibreglass trainers and in 1996 the club placed an order for the first ASK 21. Due to the enormous popularity of this aircraft a second ASK 21 was purchased in 2000. By then, all members knew that the aircraft is reluctant to spin without adding tail ballast.

In order to continue mandatory spin training at Balaklava the club approached the CTOA in January 2000 and obtained advice on the construction of a spin kit for the ASK 21. This spin kit was subsequently built by volunteers of the Balaklava Gliding Club and was ready for airworthiness approval later that year.

Tobi Geiger reported separately on his work in relation to this spin kit. His efforts mainly focussed on airworthiness matters although some test flying was performed in order to confirm safe spinning operations within the C of G limits published by the Schleicher factory. During his research Tobi learned that various reputable authorities in other parts of the world had previously undertaken investigations on the spin characteristics of the aircraft. It turned out that even the US Air Force has a long record of using the ASK 21 for spin training and released a detailed report on their extensive tests.

Another interesting fact was discovered during Tobi's research. Almost 15 years ago the Schleicher factory had already released a simple



ASK21 factory spin kit

Photos: Bernard Eckey

spin kit and confirmed that the aircraft can be safely spun with the C of G close to the rear limits. Also advice was received that well over 750 ASK 21s are in operation all over the world (many of them with factory spin kit) and that not a single spin-related accident or incident has so far been reported.

Knowing that independently conducted tests confirmed his findings Tobi Geiger proceeded with the airworthiness approval of the Balaklava spin kit and issued the necessary loading graphs.

So far so good. While all this work was going on advice was received that the GFA Ops panel banned the use of tail weights for spin training in Australia many years ago. In order to stay within the guidelines of our governing body it now became necessary to conduct evaluation flights with Ops panel members, allowing them to reconsider a rather old but still valid ban on tail weights for spin training.

The evaluation flights were conducted by Reg Moore RTO Ops SA/NT. All flights were dual with various pilot weight combinations using tail weights between 7.5kg and 12kg. The ASK 21's performance on aerotow and winch launch was evaluated as was the amount of forward trim required. Various entry methods were used, significantly an entry off a slow shallow turn was successful as were others.

Recovery was achieved using the manufacturers recommended method with only moderate height loss. Recovery commenced half to three-quarters of a turn after initiation depending on cockpit and tail weight. Application of aileron during entry caused the glider to enter a spiral dive while application of aileron after spin commenced affected rate of rotation.

Recovery from winch cable break was achieved without difficulty. Handling characteristics and control effectiveness at stall was normal. The ASK 21 spin characteristics were found to be very suitable for training purposes. Use of the tail ballast chart was not difficult.

A thorough understanding by the user of the effects of adding tail ballast is recommended. As a result of the evaluation the GFA Ops Panel agreed to approve the ASK 21 for spin training using tail ballast. Owner/operators will need to apply for approval and provide suitable operating procedures.

There are two spin kit types: the Balaklava Gliding Club model, a dolly type fitting with weights attached. It is very visible and being a dolly is part of pre-take-off check. No modifications to the aircraft are required (see photo). The other type is a factory model and involves lead washers being attached to the lower fin with a bolt. While being more simple in construction it is less visible when fitted and requires a bush being glassed into the fin (see photo).

Good things are worth waiting for. The club now has two modern and extremely popular trainers in its fleet. Our ASK 21s are now not only capable of performing the whole GFA training syllabus but also make for good cross-country trainers. They have proven to be very versatile and robust gliders without any maintenance hassles at all. It is understood that two other clubs have recently ordered Schleicher ASK21 trainers and feel sure that our work will now benefit the Australian gliding movement as a whole.





SA State Gliding Championships

1-7 December 2001

At Waikerie. All classes and all GPS/logger included.

Inquiries to Catherine Conway <conway@aus.com> or Waikerie Gliding Club.

NSW State Gliding Championships

1-8 December 2001

Narromine Airport. Enquiries to Eric Sweet, email: <eajsweet@ozemail.com.au>.

South Australian Performance Week

10-15 December 2001

At Waikerie. Cross-country coaching for entry level pilots in both lead and follow single-seat and shared flying in two-seater sailplane. Details from Waikerie Gliding Club.

The Australian Services Gliding Association (ASGA) Annual Competition

27 December 2001 - 11 January 2002

Held at Leeton. All skill levels from late training/early solo through to experienced are catered for. Launching by both winch and aerotow. Limited camping on airfield, good accommodation in Leeton Caravan Park.

Contact Nathan Guinness on ph: 03 5146 7050 (w), fax 03 5146 7014 (w).

FAI Club Class Championships

31 December 2001-11 January 2002

To be held at Temora.

Vintage Sailplane Regatta

5-12 January 2002

Barossa Valley Gliding Club of SA is honoured to be hosting the VGA's 25th annual regatta at Stonefield. Winch and autotow, plus aerotow if demand is sufficient. For local information and assistance contact Syd Wright 08 8243 2316 or email: <sygw@chariot.net.au>.

WA State Gliding Championships

6-19 January 2002

The Beverley Soaring Society invites interstate pilots to Western Australia. WA pilots would love to see some different gliders and pilots making the trek across the nullarbor.

It's been many years since a group has ventured west so please give it some thought, you would all be most welcome.

We are keen to see a more successful and competitive competition by upping the numbers. Free entry to interstate pilots. Enquiries: Don Woodward 0419 809 463, email: <jdwoodward@bigpond.com>.

40th Australian National

FAI Gliding Championships

13-25 January 2002

Narromine Airport. Enquiries to Anne Elliott, Narromine, ph/fax: 02 6889 1229 or email: <annell@hwy.com.au>.

Gulgong Regatta

2-9 March 2002

All classes, gliders and pilots handicapped. Multiple pilots welcome. Camping space available on airfield and plenty of accommodation in Gulgong. Enquiries to Christine Meertens ph: 02 9452 2777, fax: 02 9453 0777, email: <hkmxor@msn.com.au>.

Victorian Soaring Association State Competition

9-16 March 2002

Bendigo Gliding Club, Bendigo-Pyramid Hill Road, Raywood. Contest Director: Colin Campbell. Camping is available on the field with showers and kitchen facilities. Food will be catered for by the club.

For further details contact Colin on 03 5435 3340, email: <colinc@origin.net.au> or Phil on 03 5435 3625, email: <libelle@impulse.net.au>.



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Nostalgia

MARTIN SIMONS

Graham Dunn's memories of disused airfields in

England remind me. I have told the story before

but not in Australian Gliding/Skysailor.

I was sent off on my first cross-country flight in the club's 'Olympia', towed off from Dunstable by a Tiger Moth. It was a good soaring day by English standards. Thermals were going to cloudbase at about 3,500ft. I was supposed to make the 50km Silver distance by reaching Husbands Bosworth, home of another well-known gliding club in the Midlands.

I had a bit of a struggle at first, but got going quite well and before too long realised I could reach Husbands Bosworth easily. It was a nice day so I decided to push on further. Soon I approached the large city of Leicester which sprawled across the land ahead for what seemed like a huge distance. I thought it would be rash to try to cross a city, so I turned back.

I had already noticed Bruntingthorpe airfield, marked on my map as disused. It had the usual wartime arrangement of three runways. In the central triangular area a tractor was busy ploughing. There had obviously been crops in all the other sectors. These signs confirmed what the map said. What attracted me was that there was a very, very large main runway, which apparently had a better surface than the other abandoned strips. My first outlanding could be made in an ideal situation. I had lots of height still but decided not to backtrack any more and landed on this super runway. It was indeed a perfect surface.

As I rolled to a standstill and undid my straps, I was startled to find a car pulling up alongside. Two officers in uniform, indistinguishable from ordinary policemen, got out.

"Right sir. We'll get this thing out of the way, then you come with us to the guardroom!"

"What? What's wrong?"

"Get the runway clear immediately!"

What had I done?

The Olympia was parked safely on the stubble.

"Bring the aircraft logbook." One of the men peered into the cockpit.

"There isn't one. We don't carry logbooks in gliders."

"What's this, then?" He brought out the Daily Inspection book, which I had properly filled in and signed, like a hundred others before me.

"That's only the DI book. It's all I have."

In the guardroom I tried to explain. They seemed sceptical.

"Your pilot's licence?"

"Sorry, we don't have licences." I hadn't even got my 'C certificate' with me, nor even a badge.

"Identity papers then?"

"You can have my driver's licence. The place is marked as disused. See, on the map."

"Yes, we know about that. We have to confirm your story."

"I'll phone the club at Dunstable, they will tell you who I am and they can send the Tiger Moth to tow me home."

"We can't let you do that."

"I can go to a public call box. Is there one somewhere?"

"We'll make the call. What is the number?"

I told him.

"London Gliding Club?"... He spoke to someone in the club office. He looked at the DI book.

"Do you own a glider, EON 135?" He was reading the manufacturer's work number from the front of the book. If he had just said, 'It is an Olympia with a damn great big number 61 on the tail,' the young girl who had picked up the phone might have recognised it. She had no idea what an EON was, let alone the works number. Why should she? She didn't know my name and didn't know I had been authorised to fly cross-country. All very suspicious. Fortunately, after some delay she managed to find a club instructor who did speak for me and the glider. I wondered, long afterwards, what would have happened if he had said, 'Simons? Never heard of him!' But he admitted to knowing me.

"Please",... I interrupted. *"Ask them to send the Tiger Moth"*... He rang off.

"Can't do that without authorisation."

Where had I landed?

The atmosphere became a little easier and they gave me a cup of guardroom tea.

"We could ring Wittering for you, I suppose."

Wittering? I remembered that Wittering was the RAF base for the famous V jet bombers, the Valiants, Vulcans and Victors, which were the mainstay of Britain's nuclear deterrent force.

He did phone Wittering. A long delay. They would call back, they said. It was, after all, a weekend. The V bomber base could hardly be at its most alert state on a Sunday!

The return call came through at last.

Wittering say they are referring the matter to Bomber Command HQ at Uxbridge.

Another long delay, another call returned eventually.

"Uxbridge say you can have the Tiger Moth land here to tow you back, but there has to be a fire tender and crew on the spot. We don't have a fire tender here. It will have to come from Wittering!"

"But that's miles away! It will take hours! And it's getting dark, so the Tiger won't be able to come anyway."

"As you say, sir."

"This is quite ridiculous. If I had landed in that big stubble field across the road, I would be home by now!"

"That's very likely true, but you didn't, so you won't."

The club promised to send a trailer. The RAF policemen helped me to de-rig the Oly, and let me go down to the village pub for a drink and a meal.

"What, you landed a glider there?" said the barman, amid chuckles from his numerous customers. *"That's a bomber base."*

"The airfield is marked as disused."

"Of course it is, it's secret. Everyone knows that! This is the first diversion base for the V bombers. When they go off on their strike against Moscow, by the time they get back Wittering won't exist any more. So they land here and... well, they land here."

The penny dropped. *"They land here and re-arm"*, is what he had nearly said. So those big humps in the ground I had noticed, must be storage bunkers for... nuclear weapons! But it didn't seem very likely that Bruntingthorpe would exist either, in such a situation.

I got home, by road, at some dreadful hour the next morning.

I have visited Bruntingthorpe since then. It is still an active airfield and is evidently the site of a jet airliner maintenance and repair centre. I can recommend the pub meals. ✂



THE GLIDING FEDERATION OF AUSTRALIA

Please note: all prices include GST

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Wind-Born – A Journey into Flight	
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Accessories

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GFA Tie (Big red glider on blue background)	\$19.25



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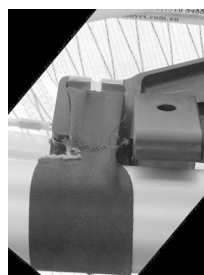
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Manufacturer's Safety Notice – Moyes Litespeed

Moyes would like to advise all Litespeed owners to check the front centre section webbing strap that attaches the centre section to the keel. There have been cases reported of wear on the front strap due to an abrasive edge on the centre section. The wear would be most prominent in gliders that have been subject to high loads, for example, gliders that are continually set up in windy conditions with tail to the wind.



A strap that has been rotated to show a severe case of wear

We recommend all Litespeed owners to check the strap and to contact their nearest dealer for more information if there is any sign of wear. Retro-fit parts will be supplied with fitting instructions or your dealer will make the required modifications.

Moyes Team

The Future of the Birchip Competition

Over the last nine years the Birchip Competition has been a big part of my life. It has been a very fulfilling project but it has also taken up a lot of my time in its organisation. Recently I have had a considerable promotion which will mean much less time available for organising next year's competition. I have always taken pride in the fact that the competition, though an amusing shambles, is an organised shambles, and I feel with my current commitments that I wouldn't be able to do it justice.

Rather than let this great institution go the way of the DoDo, I am appealing for help in running next years competition. What I envisage is a group of four or five motivated people to work as a loosely based committee with myself, to help, particularly in the organisation phase. With this sort of support I would not expect the workload to be very much at all per person. I would be happy to continue to act as Competition Director (or just as happy to let someone else have a go if they would like). In the true tradition of the Birchip Competition, all positions would be voluntary, but of course everybody would be able to fly (including myself).

I know there is a great tradition of "let someone else do the work, we'll just fly" in the hang gliding community, but eventually with this attitude you end up losing a lot of great things. With your help, we can still have the Birchip Flatter than the Flatlands in another ten years. If not, we'll all have to find something else to do next Easter and I, for one, would find that really sad.

Depending on the response I will make a decision in December.

Your Humble Meat Head, Warwick Duncan
<warwickduncan@ains.net.au>

Christmas and New Year Closure – Notice to all Pilots

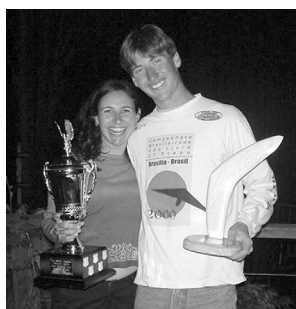
The HGFA office will close for the Christmas/New Year period
as at Friday, 21 December 2001 – 4pm.

Pilots are urged to renew their membership prior to Friday, 14 December 2001, so that mail can be returned to them prior to the closure of the office. (Please note that anything received after 14 December 2001 will be processed in the new year.)

Instructors are also urged to purchase supplies prior to 14 December 2001, as delivery cannot be guaranteed after this date.

The HGFA office will re-open on 2 January 2002.

Craig, Margaret, Colleen and Karina wish everyone a safe and Happy Christmas and New Year.



Kathy Kelly, winner of the Floater Class with Jon Durand Jr winner of the Open Class

Rogers, task 2; Kraig, task 3 and 4; Attila, task 5). We finished with eight Moyes Boys in the top 10!

1	Durand, Jon Jnr	Moyes LS4	3,987
2	Holtkamp, Rohan	Airborne Climax 14	3,821
3	Bertok, Attila	Moyes LS5	3,718
4	Coomber, Kraig	Moyes LS4	3,566
5	Durand, Jon Snr	Moyes LS5	3,536
6	Heaney, Grant	Moyes LS4	3,421
7	Moyes, Steve	Moyes LS5	3,410
8	Pritchard, Phil	Moyes LS4	3,021
9	Osborn, Tim	Aeros Combat	2,869
10	Cleod, Glen	Moyes LS5	2,656

Congratulations also to:

Trevor Kee (Moyes Xtralite 164) winner of the Kingpost Class and Kathy Kelly (Moyes XT 145) winner of the Floater Class.

Full results can be seen at: [www.triptera.com.au/canungra/classic2001].

Vicki Cain

CMAC National XC League

I'm pleased to announce that the CMAC Winter League is now closed and the Summer League has started. The web site is currently being updated and improved (thanks Phil) to provide some new features. The final results are below. Congratulations to the winners and thanks to all those that submitted flights. I received 81 flights with a total distance of 2,155km – not bad for winter. I think the Summer League should be even better.

Congratulations to Enda, Andrew and John for taking out the first three places nationally, and Enda, Andrew, John, Craig and Wesley for taking out the NSW, QLD, WA, ACT and VIC first places (no flights from anyone in NT, SA or TAS – maybe the summer league will inspire them). Also special mention to my good friend Gordo for bringing up the rear.

Canungra Classic

Some great results for Moyes and young Jon Jr. at the Canungra Classic with Litespeed pilots winning every day of the meet (Jon, task 1; Gary

Special thanks to the Western Soarers Hang Gliding Club and Phil Wainwright for making their web site available to host the CMAC XC League.

The main changes for the Summer League is the handicapping system for the flight types. More details when the web site is updated.

Once again, thanks for the support. Keep the flights coming. For the latest update check out [www.iinet.net.au/~navi].

Bomber <cmac_league@hotmail.com>

New Harrierville Landing Paddock



For years, pilots launching from Mystic and flying to Harrierville have been landing at Hines' paddock just outside Harrierville. This paddock has recently been acquired by Mr Brown, an aeromodeller, who has

made it very clear that he doesn't want any hang- or paragliders landing there anymore.

A new landing paddock is located nearby. A fence stile is now on the access track to this paddock and a wind sock will be erected as well. Beware of an electric fence that cuts across the paddock approximately 2/3 of the way to the down valley end. The above picture should give everybody an idea where the new paddock is in relation to the old one and how to get to it from the main road.

Cheers! Karl Texler Jnr

Club News

Melbourne Hang Gliding Club, VIC

With the consistent smooth winter flying conditions making way for the more fickle spring conditions, pilots from the club haven't experienced as much airtime as in the previous months.

Some (novice) pilots still flew throughout September however (mostly at Three Sisters) with airtimes of two hours plus. The club was very active during this time in other ways. The annual parachute

deployment night was held early September, and both our September and October meetings at the Palace Hotel were very well attended. The guest speaker for September, Warwick Duncan, gave an interesting and insightful talk on the history of towing (amongst other things) and briefly on competition flying. Our October speaker was John Langmead who spoke on navigation in controlled airspace, and the potential adverse outcomes of failing to comply with navigational rules! More recently, a site maintenance working bee was held at the Mt Dandenong launch where ten (or so) club members and others worked to reinforce the launch, chop down dead blackberries in front of launch, and remove no less than half a 4WD ute load of cans, bottles, chip packets, golf balls, and the odd home made bong from below launch!

Summer is coming, and so are the thermals. The club meets every third Wednesday of the month at the Palace Hotel in Camberwell. Dinner is at 6:30pm, meeting commences 8pm. New members most welcome, as are new pilots!

Vanessa Sparke

Sydney Paragliding Club, NSW

The Sydney Paragliding Club only meets four times per year. We have an email system set up so that we can each let all the others know what we are doing flight-wise. The advantage of this is that we can join in with other pilots and take advantage of their site knowledge, etc, resulting in more flying. Our club will be organising trips away, as do most, and you're welcome to join us for our mutual benefit.

Ben Kovco recently moved up from Melbourne and contacted us via our internet site: "Where can I fly? I need a fix."

Paul Cox and Dave Worthington had good flights from Blackheath. The newly constructed launch was very much appreciated (thanks to all involved). This was Dave's best flight from here, landing 30km from launch after punching 10-15kt headwinds for much of the flight. He found lots of thermals but also lots of sink between. Dave hit 2,300m near Hassans Walls and was joined by a motorised glider that did a few tight turns around him. Dave got another climb over the outskirts of Lithgow which took him to 2,450m over the town. Tiger country suggested a detour along the highway, following the "safe" route and he ended up landing just past the Wallerawang dam.

News from Duncan Cross. We had a fun flight at Cooks Terrace at South Mona Vale. There were lots of pilots there and even an instructor doing tandems. It's only about 200-300m long with a narrow lift band, so it only allowed three or four pilots in the air at a time, otherwise the lift was good with top landings a little hard to achieve because of the abundant lift. People were taking it in turns of about half an hour each; you miss Stanwell with its long coastline and the ability to spread out over a bigger area. It was fun floating past the houses on the cliff edge and looking down on the people having lunch

on their verandahs. Not many people on the beach yet as it was a bit cold with the strong wind. Occasionally some stronger lift would come through well out from the normal lift band and you could gain an extra fifty metres height. Everything seems to be happening a lot quicker when you are in such a confined lift band, constantly on the look out for the other pilots and keeping some reasonable pattern going so that no one is squeezed out. A fun afternoon. I assume it was epic at Bald Hill if the wind was the same as what we were getting.

We can be contacted at [www.sydneyparagliding.com] or phone Paul Cox on 02 9557 1185 or email <mark@sydneyparagliding.com>.

Blue Mountains Hang Gliding Club, NSW Corryong Cup 2002! 12-19 January

While the guns are sweltering out at Hay come to the best FUN comp of the year. Mt Elliot, Corryong is one of the most reliable and spectacular flying sights in the eastern highlands.

This year the comp will be scored on a handicap basis according to your glider type and flying experience, so everyone who enters has a chance of taking out the top prizes.

This year prizes will be awarded for the first three positions as well as a prize for the best placed veteran and most improved new comer to competitions. The first placed team will receive the traditional Corryong mugs. Day prizes are also given out each day.

A raffle will be held with numerous prizes from sponsors and local businesses.

You must have an intermediate rating (preferably with inland experience), UHF radio and camera.

This is the cheapest comp in the HG calendar at only \$95 if you register before 1 January 2002 (\$105 thereafter). Included in this fee is comp entry, comp T-shirt, film for turnpoints, colour topo map of the area and a presentation dinner.

Places are limited so don't miss out. Register now with the Blue Mountains HG Club, c/o: Steve Bell, PO Box 401, Helensburgh NSW 2508, 0412 686812 (mob), email <spbell@1earth.net>.

Hill Flyers News, WA

Lots of great flying through the spring. A successful September Geraldton Fly-in, where all who attended had some top flying over the beautiful Chapman Valley. All the sites are only minutes away from town, making it as easy as "setup and fly"... The fly-in definitely tuned our flying skills for all the spring flying to follow, back in Perth. (Thoroughly enjoyable and already I'm looking forward to next year's September Geraldton Fly-in).

Bakewell, Noondeening and the Range delivered another fabulous spring season of out and returns and plenty of silky air to soak up. The cropped paddocks seemed to be on every flat bit of ground this year, but surprisingly they generated the best big and smooth thermals after lunch, after smaller

punchier thermals for the first part of each day. The York racetrack again became a favourite landing zone, providing a mowed flat grassy landing strip, which

we are welcome to use - providing we don't land in the earlier part of the day before 8:30am when there may be race horses being trained on the track.

The final day of the spring thermalling week which was held up at Wylie, saw 13 pilots converge on Noondeening for a great day's flying, where I managed three out and returns over the two-and-a-half hours, after launching before 10am. Many other pilots also managed out and returns, notably Kiwi Dave, Dave Williams and Steve Hoefs, with a few late flyers like Jason Kath managing some silky flying after 4pm. There was so much great flying this season that I expect we'll see a few detailed articles in future Skysailors (*Sub-ed note: I heard that! Let's see the goods!*)

Coming up is the Hill Flyers Christmas Function to be held again this year at Cascades, the second Wednesday in December. Many pilots will then be venturing down to Albany for the annual pilgrimage to camping areas at Shellies over the Christmas/New Year breaks. No doubt January will see Bakewell cooking up rough thermals through the day, before the relaxing silky "wonder wind" from about 5pm onwards.

See you in the air, Rick



Product News

Harry and the Hang Glider

"Harry and the Hang Glider" is a beautifully illustrated, hardcover children's book with 40 colour pages written for pilots to share the dream of flight. What a great Christmas gift idea for the kids!

Available through Moyes Delta Gliders Pty Ltd, 1144 Botany Road, Botany NSW 2019, Australia. Ph: +61 (02) 9316 4644, Fax: + 61 (02) 9316 8488, email: <moyes@moyes.com.au>, web site: [www.moyes.com.au].

Ozone Paragliders

The Australian Paragliding Centre is the newly appointed sole distributor for Ozone gliders in Australia and is currently setting up a professional dealer network throughout Australia to support and offer the very best of after sales service and advice for the complete range of Ozone products. Dealer enquiries are welcome and should be directed to

Peter Bowyer on 02 6226 8400 or by email at <ozone@australianpara gliding.com>. If you have bought a new Ozone from APC then we would like to offer you a position on the APC team. This includes: expert tips and advice on thermalling, XC flying, reading the day and localised conditions or best strategies for good results at either sanctioned competitions or fun events. Don't miss this opportunity!

Ozone Pilots win in Brazil

The Brazilian National League was completed and after 10 valid tasks the Serial Class champion was Mauryho on a Proton GT. In fact Ozone pilots took four out of the five top places. Congratulations and thanks to all who flew so well and everyone who enjoyed some great flying.

1	Mauryho	Proton GT
2	Edimar	Ciclone
3	Alberto Parda	Proton GT
4	Gilmar Jesus	Proton
5	Lulu	Proton GT

New Ozone wings coming soon: Vibe, Mutant, Freak, Octane, Atom, Peak. Check out these gliders at the web site [www.ozone-gliders.com].

To test fly any Ozone gliders or to find your nearest dealer contact the Australian Paragliding Centre [www.australianparagliding.com] or email <ozone@australianparagliding.com> or phone 02 6226 8400.

FAI News

WPRS and Country Rankings Update

The only changes are to the PG rankings. These see the addition of the Polish and Belgian Open and the French Championships. The top seven places remain unchanged, with Steve Cox (SUI) maintaining 1st overall on 323 points. Jean-Marc Caron and Martin Brunn move up a place to joint 8th and Jimmy Pacher slips from 8th to 10th. Louise Crandal (DEN) leads the female rankings in 36th place of the 840 pilots.

Forthcoming competitions that qualify for WPRS points are: HG Cat 2 – Korean HG Championships; Canungra Classic, Australia; South African National Championships. PG Cat 2: Korean PG Championships; Canungra Cup and Manilla Open, Australia; All Africa Championships, Australian Nationals. Details of these comps can be found on [http://events.fai.org/hgpg/civil-calendar.asp].

PG country rankings have changed little. Switzerland leads France (2nd) and Austria (3rd). Japan (4th) has moved ahead of Germany (5th). Great Britain and Denmark stay 6th and 7th and the USA moves up to 8th from 15th. Slovakia (9th) and South Africa complete the Top 10. Full details at [www.fai.org/hang_gliding/rankings/].

Paula Bowyer

Australia

ACTHGPA Canberra Fly-in 8-9 December 2001

Flying whatever hill is on around Canberra. Meeting at Weston McDonalds, Saturday, 8:30am. Contact: John Chapman (0412 159472) or an ACTHGPA Committee member (see "HGFA Addresses").

Australian Open HG Championship 29 December 2001 - 5 January 2002

Deniliquin, NSW. Ground- & aerotowing. We are now recruiting new pilots to fly in competition. Lately a lot of comps in Australia have become like a marathon, taking up to eight hours to complete the task. What chance does a new pilot flying an entry-level glider have? They never get the reward of seeing the finish line coming up! Never get the luxury of having a cold drink given to them by their mate in goal! Flying half-way might be a personal best, but no cheers to greet you when you land!

By running this Australian Open we want to change that! Three comps in one: Open, Kingpost, Floater sub-classes. The aim: To have more fun! Tasks to suit most pilot skill, experience & fitness level (three different tasks); all pilots to have a realistic chance of making goal every day; new, low airtime pilots being able to fly with the good guys, but compete against their peers; most pilots to have a chance of winning the competition regardless of the glider they fly. (The competition will be run like three separate competitions. You can only win the sub-class you have entered. There will be three separate winners of this Australian Open!) For more information please contact us on [www.cool-ether.net.au/australianopen2002], email: <chggpc@goulburn.net.au>, ph: 0419 681212 (from overseas +61 419 681212).

Australian National HG Championship 8-16 January 2002

Hay, NSW. AAA, FAI Cat 2. \$15,000 in prizes have been given away in the last two years, mostly to C & B Grade pilots. Requirements: Enthusiasm, GPS (for scoring), parachute, UHF radio, tow endorsement. Teams or fully catered packages can be arranged. Aerotow or ground tow on 3km strips. Entry: Free if you've never been to a Nationals at Hay, otherwise \$150 by 8 Dec. \$50 late fee. For full details see [www.dynamicflight.com.au], ph: Rohan Holtkamp/James Freeman 03 53492845, <info@dynamicflight.com.au>.

Corryong Cup 12-19 January 2002

Registration & practice day: Saturday, 12 Jan. Rego & comp start: Sunday, 13 Jan. Last competition day & presentation night: Saturday, 19 Jan. Entry fee: \$95 if paid before 1 Jan. (\$105 thereafter). Contact Steve Bell at PO Box 401, Helensburgh NSW 2508, <spbell@1earth.net> or ph: 0412 686 812.

Bogong Cup 20-27 January 2002

Mt Beauty, VIC. AA sanction. 28 January is a public holiday to allow time to travel home. The Bogong Cup offers some of Australia's best Alpine flying. We will be using Mt Emu, Tawonga Gap, Mystic & the awesome Mt Buffalo. The field will be limited to 75 so we can all fit on the Hill. First in, best dressed. Requirements: Enthusiasm, GPS (for

scoring), parachute, UHF radio. Teams or a fully catered package can be arranged. Plenty of activities for the family. Entry: Free if you have never been to a Bogong Cup before, otherwise \$150 by 20 Dec. \$50 late fee. For full details see [www.dynamicflight.com.au] or ph: Rohan Holtkamp or James Freeman on 03 53492845, email: <info@dynamicflight.com.au>.

Australian National Paragliding Open 16-23 February 2002

Bright, VIC. FAI Cat 2, HGFA sanction AAA. Entry fee: \$180 (\$40 discount if payment received before 1/1/02). Organiser: Karl Texler, ph: 03 57501733, fax: 03 57501153, email: <brightvt@netc.net.au>, web [http://home.netc.net.au/~alpcomp/BrightOpen2002/].

WA State Soaring Championships 23 February - 3 March 2002

Wyalkatchem, WA. (Monday, 4 March is a public holiday.) Premier event on the WA HG & PG calendar. Eight days of heart-thumping XC action. See [www.iinet.net.au/~navi] or contact Gordon Marshall <gordo@hangglide.com.au>.

Manilla Paragliding Open 2-9 March 2002

Mt Borah, Manilla, NSW. Final rego: 1 March, 7pm Manilla Town Hall. CIVL/FAI Cat 2 (for WPRS) & HGFA AAA. Over \$5,000 in prizes. 125 pilots max. (& it will be full like the last four years). \$140 before 1 Jan, \$160 thereafter. Full online registration at [www.mss.org.au] from 1 October. Organiser: Godfrey Wenness, ph: 02 67856545; fax: 02 6785 6546; email: <skygodfrey@aol.com>. Sponsored by: Advance, Flytec, Hanwag, Garmin, Manilla Shire Council, Manilla RSL Club, Guardian Chemist Manilla, Ambleside B&B, Rivergums Caravan Park, Vic & Toms, Imperial Hotel & more.

Overseas

New Zealand Paragliding Nationals 2-9 February 2002

South Island, NZ. Wanaka sites, including Coronet Peak. Cost: NZ\$180 before 19 January, otherwise \$200, incl. maps, comp levy, films, BBQ, prizegiving dinner, prizes, limited transport. registration/briefing: Friday, 1 February. Organiser: Rob Darby, ph 025 220 1185 or 03 443 1680 or email: <lucky_montana@hotmail.com>.

Nova Fun & Fly-in Maninjau 2002 21 - 28 April 2002

Lake Maninjau, Sumatra, Indonesia. For those with a yen for something different & who wish a unique and memorable paragliding experience in a beautiful & tranquil part of West Sumatra. US\$300/person twin share, US\$175/single supplement. Includes 3-star resort hotel overlooking lake & close to launch, land transportation in flying area, transfer: airport-hotel-airport, dinner with cultural show, sightseeing for non-flying participants, video shooting for night time review. For more info visit [http://fieg.com/indonesia/~sumatra] or [www.paragliding.indonesia.com] or email <anwisata@cbn.net.id> or <info@paragliding-indonesia.com> or call us at: +6221 8841915, fax: +6221 7970924 or 8841915.

Electrikery: Electricity and your Trike

– Part 6: Radio Propagation

NED McINTOSH

Having dealt with the typical trike antenna installation it's now time to discuss the transmission of radio waves and some peculiarities of radio propagation.

Before we do, I should mention that where an electric current flows, whether it is in a wire or as a radio wave, there exists a magnetic field associated with the flow of current. If the flow is DC, then the polarity (ie., direction) of the magnetic field is always in one direction. If it is an AC current then the corresponding magnetic field also oscillates.

The peculiarity about this magnetic field is it always exists at right angles in space to the direction of the electric field, although it is always in time with the flow of current. This is termed "time phase but space-quadrature". That's as technical as I intend to get on the subject of magnetic fields, but you need to be aware they exist any time a current flows. They have important implications for other things on your trike, especially your compass.

You can easily prove this by putting a wire near your compass and passing a DC current of a few amps through it (a 12V car headlight will suffice). The compass will deflect significantly. The larger the current the stronger the magnetic field and the greater deflection in the compass. For this reason it's highly inadvisable to run power cables to things like GPS receivers or (especially) radio transceivers anywhere near your compass!

Now, back to radio waves. Let's take the antenna we are most familiar with, the quarter-wave vertical. The electric field is vertical so the radio waves are vertically-polarised. They will be received best on another vertical antenna, rather than a horizontal one (which results in a large decrease in received signal strength). Recall from a previous article the concept of field strength. We need to maximise the field strength from our antenna, and this required our antenna to be resonant ("tuned") and well-matched to the feedline and transmitter ("impedance-matched"). The quarter-wave vertical fulfills both requirements and is omnidirectional, which simply means it sprays radiation out in all directions (except right off the tip). If you could "freeze" the radiation from the antenna it would appear to be a spherical "shell", centred on the antenna. The radiation pattern is equal in all directions

– omnidirectional. Just what we need. But how far does the radiation go?

That depends! The altitude the trike is flying greatly extends the effective range of the antenna on both receive and transmit. (You've all heard Cessnock and Taree come booming in on the old Wollongong CTAF of 126.7Mhz when airborne but not on the ground.) Altitude is great for getting good range from your radios. We really don't need much more than 60 miles range anyway and even with modest altitude this is achievable. If the receiving station (control tower or another aircraft) has a sensitive receiver and a good antenna the range may well exceed this figure.

Increased transmitter power also increases range, but a rough rule-of-thumb states that ten times the power will only double the effective range – impractical for our little machines. A directional antenna will also do the same, but is inappropriate for an aircraft which needs coverage in all directions.

How far your transmissions go also depends on propagation. First, we need to broadly define what we mean by MF, HF, VHF and UHF, since these are terms which will occur frequently in this discussion. MF is the range of radio frequencies from 30Khz to 3Mhz. HF is 3 to 30Mhz. VHF is 30Mhz to 300Mhz. UHF is 300Mhz to 3Ghz (A Megahertz is a million cycles per second and a Gigahertz is a thousand Megahertz).

Basically there are three kinds of radiated waves – the direct wave, the ground wave and sky waves. The direct wave is slightly in excess of line-of-sight. A rule of thumb states that the radio horizon is four-thirds times the optical horizon. On VHF they are our dominant mode of propagation. Although this limits the area over which they can be received, the radio horizon at several thousand feet can exceed 80 miles, which is plenty for our purposes. Go to 30,000ft and a couple of hundred miles is routinely possible. (Hint: Calculate the area of a circle with a radius of 200 miles – it's huge!)

The ground wave follows the curvature of the surface of the earth. It suffers attenuation by intersecting the earth's surface with the result that VHF ground waves die out in a few dozen miles.

Sky waves are the least useful propagation mode at VHF for aircraft because they are unpredictable. Sky waves rely on reflection of radio waves from the ionosphere and this phenomenon is mostly confined to MF and HF. On VHF it results in ionospheric scatter modes which are not continuously available – not much use for an aircraft requiring reliable VHF communica-

tions. The ionosphere – a series of layers of charged particles in the atmosphere which reflect radio waves at various angles – changes daily by the action of sunlight on the upper atmosphere. Ionised gases (and electrons) accumulate in discrete layers at various heights (the D-layer, E-layer, F1 and F2), and they greatly affect HF radio propagation but in more or less predictable ways. Above 150Mhz, the ionosphere has little effect on VHF propagation anyway.

On HF it is routine to work stations halfway around the world via sky waves (long distance commercial aircraft do just that). At night the D-layer dissipates and the F1 and F2 layers coalesce to form a single F-layer, with the E-layer below it. The frequencies for sky wave propagation at night are much lower than during the day (between 4 and 6 Mhz compared to between 12 and 25 Mhz, for example). You all know how much better reception of AM broadcast stations is at night compared to the day.

VHF waves are subject to an anomalous propagation mode called "ducting". It takes place usually in spells of hot weather, especially in coastal areas. A mass of warmer air becomes trapped between two layers of colder air, forming a duct with greatly enhanced VHF/UHF propagation characteristics. At such times, radio amateurs make long-distance contacts hugely in excess of the normal range – Australia to New Zealand on 144Mhz (the amateur two-metre band) is reasonably common. From the trike pilot's point of view, ducting is a damn nuisance because you hear calls you would not normally expect (perhaps Coffs Harbour whilst you are flying off Bega, for example). Judicious use of the DX/Local button on your radios may be called for at such times. In Wollongong, viewers of WIN-TV on Channel 3 encounter severe interference from NBN-3 in Newcastle when ducting occurs. This often happens in late summer evenings, and the only cure is a change in the weather!

Radio propagation has its rules, but there are many anomalies as well. Certain atmospheric conditions can result in greatly reduced range, as can ionospheric disturbances such as solar flares and magnetic storms due to sunspot activity. Meteorites enhance VHF propagation by leaving trails of ionised gases – fleeting and not practical for aviation, although the amateurs occasionally make use of it. Other VHF ionospheric modes include forward-scatter, Sporadic E, backscatter, transequatorial and auroral propagation. Perhaps you can see now why radio buffs say: *"Radio is not a science – it is an art."*

The next article will be about how your radio transceiver actually works; technical enough to be useful without going "over the top" with jargon.



GPS Navigation

PETER KESTEL

GPS navigation systems have been used in sports aviation for quite a few years now. In competition they have become almost mandatory equipment. A lot of us use them every time we fly because there are many benefits in using one. One valuable benefit is when you land in the middle of nowhere, you might call your position through to the pickup via UHF.

However, there are still many pilots that do not have a GPS. Many recreational pilots are still oblivious as to what a GPS is and what it can do. This article is mainly directed at those pilots that might have a technology phobia! Also, for those that already possess a GPS, this article discusses some of the more advanced features available. For example, the software available to connect your GPS to a computer and how to do it. This is a routine operation in competitions. Connecting the GPS to your PC greatly enhances the capability of a handheld GPS. The possibilities are endless, especially with the digital maps available. Would you believe that 3D mapping software is available! You can go for a virtual flight or bush walk while sitting at your PC! The mountains are rendered into three dimensions, complete with map lines wrapping over and around the contours.



Figure 1: Typical handheld GPS

First the Basics

GPS is an acronym for Global Positioning System. Each handheld unit listens for signals from satellites orbiting the earth. Using lots of maths and electronics your precise position on the earth can be determined. This position is described by a set of numbers. A typical handheld unit simply keeps a log of these numbers. Simple as that!

Using a log of numbers a typical handheld can do much more than determine where you are. It can tell where you have been! You can enter in your own numbers and it can then determine where you are going and help guide you there.

Using still more maths, your current speed relative to the ground can also be determined. Lots of other features are commonly found, eg average speed, altitude, current heading, estimated time of arrival, cross track error; just to name a few. All of these features come in very handy whilst flying a hang/paraglider. A GPS coupled with a vario is a powerful combination. Together they can calculate glide ratios and determine if you can make that field! And a lot more.

Basic Terminology

Waypoints: A waypoint is simply one of those

numbers that describes a position, or put another way, a numerical representation of a position. The numbers that result can be in many different formats depending on what you want do. They are also dependent on what datum you use.

Datum: The word datum describes a standard format that we all agree on. If we all want to end up with the same numbers we have to use the same datum! In our case we mostly use WGS 84. NMEA is another example. All we have to do here is make sure our GPS is set to the correct datum. Thereafter we don't care about datums!

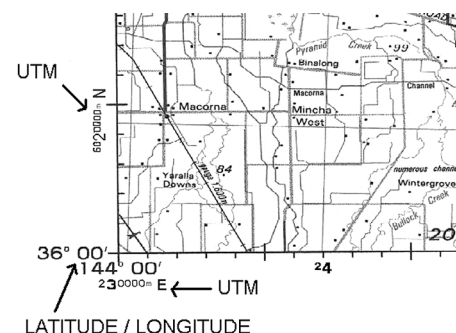


Figure 2: Sample map

Map Projections: When we want to make a map we take a portion of the round earth and make it flat! This means using lots of maths again, however for us it means we agree on another standard. Mostly we will use two common projections. Latitude/longitude and UTM. UTM stands for Universal Transverse Mercator.

A lat/long example of your favourite hill could be described as 26° 39.023' South and 152° 57.433' East. Those numbers are in degrees, minutes and seconds.

A UTM example might be 4 77 760 East and 70 74 070 North. These numbers relate to the grid pattern on most maps. On most maps you will find both projections. You can use either depending on what you are up to.

GOTO: This feature is in all GPS units. You enter in a waypoint and the GPS will guide you there. Very handy to find goal!

Routes: Quite simply you can take several waypoints and link them together. The GPS will guide you to the first waypoint and then on to the next. Just a more advanced form of GOTO.

Tracks: Modern units will keep an automatic log of where you have been. This data can be time stamped as well. Most units can keep a record

of up to 1,024 positions. You can set the unit to record your position every 10 seconds, or every minute or full auto. The data stored by the GPS unit is used in competitions. It is used to prove that the pilot went around turnpoints, etc.

Which GPS?

There are literally hundreds of models available. However, for our purposes we don't need to navigate into a busy airport! Some web sites to look at are: [www.garmin.com] – Base choice might be Garmin 12; [www.magellangps.com] – Base choice might be GPS310.

These are popular choices and there are many many more!

Connecting your GPS to a Computer

This is a very simple task. You can either pay the bucks for the correct cable, or you can make it yourself. Details on how to make one for yourself can be found at [www.pfranc.com/projects/g45contr/asmemb.htm].

Why would you connect to a computer? Anyone who has used a GPS knows that manual entry of data is a pain in the proverbial butt! With the correct software the many features of a GPS can be accessed. You can view and plan your flight on a map, and then download the plan. You might enter the circles surrounding airports or defining height restrictions. You can upload from the GPS and review your 100km flight. Coupled with the correct vario, verification of records is made easy.

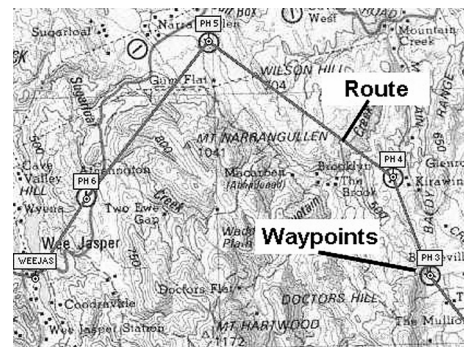


Figure 3: Waypoints and route identifying landing fields

Software

Once again there is a lot of choice. Some of the popular choices are: OZ!explorer available at [www.ozexplorer.com]. GPSU 4.02.5 at [www.gpsu.co.uk]. Garmin Mapmaker at [http://aeroshop.com.au].

What can the software do? Well, I think a better question is what can't the software do! These packages are very elaborate and take some time to master. In a nutshell you load a map into the computer. Where do I get the maps you ask? Auslig (Central Mapping Authority) have a product available at [www.auslig.gov.au]. The product consists of a twin cd set for \$99 giving you full Australian coverage of scanned images of the 1:250,000 map series. The files are initially in an ECW format but can be saved as a BMP, TIFF, JPEG or PNG

format. You can email <cherylcamp@auslig.gov.au> to make a purchase.

Personally I have settled on the Australian product OZExplorer. It seems good value at \$125. You can demo the software for free, however many of the features don't work until you register. With the latest development version (version 3.85.80) it will load maps from Auslig directly. This feature makes it quick and easy to plan your next trip anywhere in Australia. Also, if you have a laptop real time position monitor-

ing is possible. Any ideas on attaching a laptop to the basebar?

Okay, to quickly recap, you now have a map of anywhere in Australia (ie., your favourite sites). You load this map into OZExplorer. From there you can plan your flight entering way points that describe potential landing fields, turnpoints, controlled airspace, etc. The sky is the limit!

All seem daunting? Most comp pilots are quite familiar with all of the above. After a while,

reading and programming a GPS becomes second nature. Personally I practise with the GPS attached to my bike! There is already a wealth of hints and information available pertaining to our sport. Try [www.hgfa.asn.au] for a start.

I would encourage one of the comp pilots to write an article focusing on using a GPS in competition, answering questions such as what navigation screens they use, etc.

And finally, Pagen says that most pilots don't bank hard enough in thermals!



Left to right: Mark Cross, Mathew, Simon Wills, Andrew Shipley, Neil Sumpton, Nick Hauf, Rick Clarke

ANDREW SHIPLEY

Paramotoring – The finer art of conventional paragliding with a heavy object strapped to your back.
OR – The art of attempting to run across flat ground in a heavy sweat with the hope of committing aviation.

A cold winter night in June, props and motors spread over the floor, together with beer, chips, a few flying videos and a motley collection of paramotor pilots. Sounds almost perfect for a whole lot of gas bagging about flying, eh?

The point to all this? Well, it seemed to me that my list of flying buddies was fixed, as were my usual flying fields. Then a slowly growing list of names began to gather, without details, of pilots who I had been told fly paramotors around Melbourne.

Now I knew that most paramotor pilots that I had spoken to greatly enjoy flying with others and visiting new scenic flying locations. So the obvious became obvious: what we needed was an organised "club" for paramotors.

As a member of the very successful hang/paramotor Picolight email group run by Jos Weemaes, it was simple to publish my idea via email to see how much interest I could get in forming a group. But like everything else in life it's never that easy. Two replies, that was all!

Add that to my usual flying buddies and that made six. No way; I knew there were more.

December 2001

Time, patience, and persistence paid off. Some more emails, two months of trying, and a mobile bill that Telstra will be very happy about, and the list had grown to 16. Not too shabby.

So our get-together was had, but even though we dedicated a full six or seven minutes to the official discussion, the only real decisions that were reached were the obvious ones. Firstly, we all loved to fly as much as we could and there should be more of it with all of us together. And secondly, it was too much trouble for us to "form" an official "club". The decision then was the "unofficial" Melbourne Paramotor Group. The consensus was that we would keep in touch and organise at least six fly-ins around Melbourne during the year that we would try and get as many of us to attend as possible.

There is quite a range of motors we all fly, from lightweight Radne 120cc powered home-builts to the latest high-tech Pap 80cc sealed gearbox units to the consistent Solo 210cc powered models. It seems that there is an increasing number of free-flying pilots becoming interested in supplementing their 'normal' flying with paramotoring (although this may be due to the off-season withdrawals and the fact that they're getting nothing in the way of free-flying at the moment).

I should touch on the point that paramotoring is only as similar to free-fly paragliding as free flying is to hang gliding. Paragliding is quiet, soaring flight that can be likened to the eagle soaring the thermals on a hot day or the seagulls floating in the coastal ridge lift, usually done when the conditions are just right. Paramotoring, on the other hand, in my mind, is motor-cycling in the sky. It is noisier and in most cases

Group

has the vibration of the motor being felt. However, paramotor pilots

enjoy the freedom of not needing to stay in the lift band or searching for the next core. Mostly we fly at 500-600ft and enjoy the ability to cruise along 50ft off the deck and then just motor back up to height. Our "normal" flights can consist of an easy 20-30km round trip, what would be in free-flying terms a "good" cross-country.

Now don't get me wrong, many paramotor pilots love free-flying too, but hey! How often can you get up on a winter morning with a beautiful clear blue sky, not a breath of wind and go for a guaranteed few hours of flying?

Between the group members we fly from some terrific and quite different launch (runways?) fields. From the gentle grassy slopes of the picturesque Yarra Valley we can fly with the hot air balloons over the vineyards of Yarra Glen to the magnificent mountain ranges of Healesville. The flat grasslands of Whittlesea with a local mown grass take-off strip (long enough for trikes) in a huge 32 acre paddock allows flights over the Yan Yean reservoir down to the outskirts of suburbia and to the Hume Highway to the west. The southern beaches of the Mornington Peninsula provides some truly spectacular coastal paramotoring for pilots without the need to stick to the ridges; some of the flying views have to be seen to be believed.

So there it is, why we have the Melbourne Paramotor Group. Any interested pilots can contact me on <admin@magicmobility.com.au>.



Andrew Shipley taking off for a dusk fly

Yarra Valley Photos: Tilo Schmidt



HGFA General Manager's Report

As I write I am supposedly on sick leave, so I apologise for a hastily prepared report this month. After being most proud of not having taken a sickie in the eight-and-a-half years I have been with the HGFA, I have certainly made up for it over the past six weeks. I had a minor problem with my heart (a very minor heart attack) and after two weeks in hospital and numerous tests I am glad to say there has been little damage to my heart as a result. I am advised to take this as a warning and that there should be no lasting adverse affects providing I take more care of myself (read: drink less beer and don't stress!). Unfortunately I am prone to take life rather seriously and therefore tend to get very involved in my work (as I am sure my wife Suzie will agree). Nevertheless I now will be trying to run the Federation without getting too emotionally involved and without stressing out about it! I am working a few hours a day at present and will be "easing" back into full time work over the next couple of weeks. Sincere thanks to the many members and friends who have offered their kind wishes over recent weeks.

Fatal Paragliding Accidents

October was a bad month for us, with a run of minor and not-so-minor accidents, including two fatalities. Both fatalities were solo paraglider pilots, one at Mt Borah (near Manilla, NSW) involving a Tasmanian pilot and another at Mt Brian (near Burra, South Australia) involving a pilot recently emigrated from South Africa. A report from Godfrey Wenness on the Mt Borah accident is contained in the "Letters to the Editor" section of this magazine. Early reports from South Australia indicate that the pilot there was attempting a reverse launch at a site where the prevailing crosswind resulted in very turbulent launch conditions. The pilot was lifted about ten metres off the ground and thrown onto his side, fracturing his pelvis and suffering internal injuries; and died in hospital several days later as a result of complications to his injuries. Coincidentally it was around this time last year that we had a run of fatal accidents, though lack of currency due to a winter weather layoff does not appear to have been a factor in any of these. Most could be put down to bad judgment or bad luck (or both of these factors to some degree). Nevertheless pilots should be cautious when

getting back into flying after an extended break, by ensuring that flying conditions are ideal and the "safety envelope" is widened to allow additional time for decision making and reaction to any situation.

Side Wire Failure

During a recent round of the British League there was a hang glider pilot killed as a result of a side wire failure above the goal (I assume whilst flying at high speed). It has been about ten years since the last side wire failure in Australia (long enough for our old enemy "complacency" to creep in). Most gliders and microlights have a maintenance schedule outlining when flying wires should be replaced - if your aircraft doesn't have such a schedule one can be found in Section 9 of the HGFA Operations Manual. Check those wires! Failure often occurs at the swage as a result of work-hardening of the stainless steel. Kinking wires during transport can lead to damage inside the wire, which may not necessarily be visible. If in doubt, replace the wires. They are not that expensive, and certainly worth a lot less than your life.

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Board Elections

It has been two years and it is time to elect a new HGFA Management Board. Only 11 members have nominated for the nine Board positions, so this makes voting easier than ever before – you need only decide which two you do not wish to vote for and mark off the rest! Please take the time to lodge your vote.

Site Retention

Ensuring ongoing usage of sites is not just an issue for us here is Oz. The following extract is from a letter written by Glen Volk, President of the San Diego Hang Gliding and Paragliding Association in the USA. Glen raises issues very similar to those that we face and offers some sound advice to visiting pilots. Thankfully our trespass laws do not require us to gain land-owner permission to out-land gliders on private property - yet! This letter certainly reinforces the value of our Active Australia Site project.

"Our San Diego sites are in danger. The jewel of all our sites, Mount Laguna, could be lost forever if the current trends set forth in the California State Parks system continues. Our other sites, Horse Canyon, Big Black, Little Black and Blossom Valley are all under fire for one reason or another. In the case of our main sites, Laguna and Horse, we have the pressure of the Anza Borrego Desert State Park (ABDSP) in an aggressive acquisition campaign that threatens the few landing areas that we have been able to utilise from time to time. They are buying our current and potential landing areas and they only allow hang gliding and paragliding by permit. In addition the local sheriffs department has been stepping up their duties pertaining to criminal trespass on private property. They have made it known that they will not tolerate the landing of hang gliders or paragliders on property for which we have no written permission to land. If we are unable to convince the ABDSP to grant permission to land in just a few select areas it will become very difficult to continue to fly from Laguna and Horse to points north and still avoid private property for which we do not have permission to land. This will adversely affect our cross-country flying to the point of making it impractical. Eventually we will not even have a landing area directly below Mount Laguna, as ultimately the park wants to acquire most of the land in Mason Valley. At our smaller sites which are closer to the coast we have the possibility of the construction of a water treatment plant and ever encroaching development that mark the beginning of the end to hang gliding in the local foothills of San Diego County. It does not help that pilots, both local and visiting, whether they be club members or not, are continuing to fly without using the common sense that God gave them. Just a few weeks ago a visiting paraglider pilot landed in power lines at El Monte Park, which is located below the Blossom Valley launch. Although this has never been a

designated landing area the local rangers allowed paragliders to land there when they had to. However, this particular power line landing was the 3rd one in 18 months. I don't want anyone to be left with the impression that it's visiting pilots that cause most of the problems. In fact it was local pilots who are non-members of the club that committed the first two incidents. In any case the result is the same. Paraglider pilots are no longer welcome in the park or the ball fields across the road from the park. This is a shame because it was the paraglider pilots only landing area in the valley. It doesn't directly effect hang glider pilots because it is too small for them to land there. But the overall effect is devastating to our local image. Predictably the media painted a picture of looney pilots (both paraglider and hang glider) once again risking their lives in what must seem to the general public as nothing short of a dare devil sport. An image we have fought long and hard to erase. My purpose in writing this letter is to implore pilots across the country to THINK BEFORE THEY FLY. If you are a visiting pilot then contact a local before you fly. I don't mean just any local either. Where possible your local should be a well-connected pilot, hopefully a member of the local club that is in good standing with the owner of the site or the landing area used for the site. If you are a local pilot flying one of your home sites think about what you want to accomplish before you launch. Think about where the legal and non-legal landing areas are. Do right by your fellow pilots by making good decisions, not only about safety but site protocol as well. Don't hose your friends by being selfish about your flying and dropping in wherever you please. And if you do the unthinkable and land in an illegal area or cause damage you need to be damn sure you belly up and take your punishment like an adult. Don't give the cop a hard time. Don't blame the property owner because he had his horses in the field. Don't tear down a fence and drive in because you're too lazy to hike your gear out. In other words own up to the responsibility that you've chosen to shoulder the minute your feet leave the ground. If you're not prepared to do this then I suggest you sell your gear and go find another hobby. Our club has been working on obtaining a permit to land in the ABDSP for over a year now (we have a launch permit that is in jeopardy). I can tell you from personal experience that it is an incredibly daunting challenge to secure these permits here. If you are contemplating a visit to San Diego we welcome you. But be sure to check in with a member of the club first. Glen Volk"

Happy Christmas, Craig Worth

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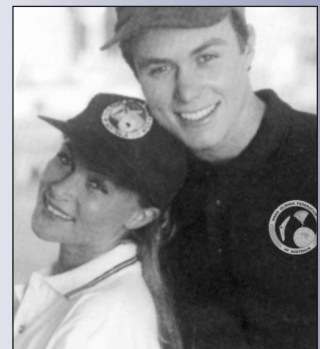
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Airborne Buzz, nov or floater, new cond. Black LE/ aqua US/white TS. Predictable & safe. Must sell, \$1,500. Ph: Paul 0411 145742; <pcjones@ozemail.com.au>.

Airborne Shark 156 adv, lilac/white US, 60 hrs, GC, spare DT, \$3,200 ono. Ph: Les 02 49682994.

Airborne Sting 154 int, speedbar, wheels, batten profile, spare DTs. Danny Scott Stealth harness. Roochutes PDA. Icom IC-40S, headset, switchbox. Bräuniger Basis-SP, mounting bracket. All cases/manuals. Full-face helmet. Wind speed indicator. Hook knife. \$4,000. Ph: Steven 0412 083999.

Airborne Sting 154 int, GG, batten profile & wheels,

\$1,500. Ph: 02 66807268; <mootexperience@yahoo.com>.

Explorer powered harness, approx. 30 hrs airtime, red/black, timber prop, suit pilot 5'6"-6'2", EC, \$3,900 ono. Ph: Mark (Coffs Harbour) 02 66511167.

Fun 190 nov, approx 20 hrs flight time, immaculate cond, 3 yrs old, \$2,500 ono. Ph: Arnold 02 95246111; 0403 424455.

Fun 190 Floater, almost new cond, faired DTs, speedbar, wheels. Will transport, giveaway at \$2,950. Ph: 0418 293615; 02 49434900.

Flytec 3030 vario with HG control frame mount, FAI barograph & software program, manual, computer cable to download data & ASI. Replacement around \$900+, will sell for \$740. Ph: Michael 0415 920444.

Moyes CSX4 adv, topless, 100 hrs. Blue/black US. New side wires & spare DT. Absolute steal at \$1500. Ph: Chris 02 98182426 (h); 02 83745113 (w); <cjones@rbni.com>.

Moyes Sonic 165 int, mylar LE, yellow/blue US, padded speedbar, GC, only 12 mths old. Test fly in Newcastle, only \$2,500, c/w bag, batten profile, owner's manual. Ph: 02 49612810.

Moyes Tracer harness, VGC, suit pilot around 6'0"-6'3", \$500. Ph: Mark 02 95483493.

Shark 144 adv, EC, only 18 mths old, suit new glider buyer, great handling & performing glider, yellow/violet US, spare DT, \$3,600. Ph: Allan 02 4773 8037.

SX4 adv, VGC, flies nice, climbs even better. Low hrs. Blue/white US, crisp Power-rib TS, \$3,250. Ph: 02 42680589; 0409 680588.

Will swap my Combat II (152) adv, in GC, for large single surface glider, eg Aero, Gyro, etc, also in GC. Ph: Martyn 0411 877745; 02 94988849 (h).

Xtralite 147 adv, low hrs, EC. \$1,800 ono. Ph: Bill 02 99640311 (w); 02 99576730 (h).

For the following items contact Jason Turner in Newcastle, ph 0419 997 196 or email <jasonturner@iprimus.com.au>:

Dynamic Flight Stealth II harness – ex-demo model, new cond, black with blue side pocket. Suit 175 cm pilot, \$900. Full-face helmets all new – SOL medium \$200 (x 3), Icaro medium \$250 (x 2).

ACT

Airborne Blade 141 adv, GC, batten profile, all new underwires, \$800 ono or swap for nov/int glider in same cond. Ph: Gary 0408 472374 (w); 02 62942233 (h).

Victoria

Mosquito motor harness & access., EC, carb fibre prop, \$4,400. **Airborne Blitz 146** adv, spare DT, wheels, mitts, VGC, \$800. 300 Ø PVC half tube glider racks x 2, \$150 each. Danny Scott Tracer harness, 5'5" to 5'10", VGC, \$380. Sjöström vario, \$250. Parachute, High Energy Sport, \$220. Wind speed ind., \$25. Helmet, full-face, M, speaker + mic, \$125. Ph: Steve 03 95557755; 0407 510830.

Moyes CSX5 adv, red & white US, white Power-rib mailsail. This glider is in VGC & flies extremely well. Includes owner's manual & batten profile. \$3,850 ono. Ph: 03 97621364.

Moyes Sonic 165 int, yellow/blue US, rest white. It has Mylar LE & padded speedbar, c/w owner's manual & batten profile. All in GC. Only 12 mths old. Welcome to test fly in Newcastle. \$2,500. Ph: Jack 02 49612810.

Moyes Xtralite 137 adv, blue US, GC, new side wires & small A-frame with wheels. Flies great – made goal 2001 Bogong Cup! \$1,000 ono. Ph: Heather 0011 31105012325; <info@heather-mart.demon.nl>.

Moyes Xtralite 137 adv, 50 hrs, as new, \$2,200. Moyes Xtreme harness, 30 hrs, EC, \$600. Ph: 0407 747721.

Queensland

Mosquito harness, 30 hrs, runs well, photos available, \$2,990. Ph: Angus in Cairns 0418 362783; <acrwalker@yahoo.com.au>.

Moyes CSX5 adv, topless, 100 hrs, perfect cond, XC bag & spare DTs, \$3,000 ono. Ph: Colan 07 49721111 (w); 07 49792392 (h).

Moyes SX6 adv, 90 hrs, in top cond, great for the light days! \$2,400. **Explorer powered harness**, 30 hrs, carbon prop, prop brake, fly all day every day! \$3,900. Ph: Clint 0415 181042; 07 47747650.

Moyes XT-PRO 145 adv, VGC, new LE (like Xtralite), nice sail, white/pink/purple, 170 hrs, manual, batten profile & pod harness, \$1,400. Ph: Bertrand 07 55229442, <surfnet@write.com>.

Paragliders & Equipment

New South Wales

Airwave Alto 27m² (75-100kg Acapul), genuine 130 hrs, yellow. Well maintained, EC. Will fit with Alto Sport risers if preferred, \$1,500 ono. Ph: Andy 02 95252133 (w); 02 95232801 (h); <amhoward@bigpond.com>.

ACT

UP Vision 60-75kg pilot weight, 94 hrs, \$1,000. UHF Uniden radio, \$250. Edel Force harness, \$100. Edel SecuraMax Pulled Apex reserve, \$250. Full-face helmet, \$40. Vario Airotec Piccolo, \$200. \$1,400 the lot. Ph: 02 62497727 (h); 02 62167081 (w).

Victoria

ITV Agena 30 (90-110kg), only 22 hrs, nice & crispy, ACPUL 12A's, ideal novice canopy or 2nd wing for paramotoring. \$1,600 ono. Ph: 0403 750600; <stuartbanks@bigpond.com>.

Queensland

Complete kit: Advance Sigma-2/29 (90-105kg) with 60 hrs airtime. Air Support harness, rugged construction, back protection insert. Charlie rapid opening reserve (unused). Aircotec Piccolo Plus vario. UHF 40ch radio. Full-face helmet with headset. \$1,800 complete. Ph: 0429 342289; <bluelily@start.com.au>.

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WINDWATCH: Small, waterproof & accurate. Digital display, multiple scales (km/h, mph, kt), average & gust memos, temp. & wind chill. Takes the guesswork out of wind strength measurement. Swiss made\$ 159

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Ph: 02 67 85 65 45

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South Australia

Swing ARCUS M, 65-90kg pilot. Most popular nov/int in Europe/USA due to great performance with safety. 120 hrs, EC. Current model, 1 year warranty left. See [www.parapunter.com] for reviews & more details. \$2,600. Ph: 0428 436737.

Trikes & Equipment

New South Wales

For the following items contact Jason Turner in Newcastle, ph 0419 997 196 or email <jasonturner@iprimus.com.au>
Icaro trike helmets (x 2) with visors, medium size, new in box, \$250 each.

Victoria

Pegasus Q2 wing covers. Handmade to fit Q2 wing. Heavy-duty w/proof canvas & leather. Stops 100% UV & bird dropping damage to wing. \$850. Ph: Doug 0407 776278; <dstrandly@spiderjunction.com>.

Queensland

Buzzard T1-2054, pod, spats, 532 Rotax, 3-blade prop, EGT, CHT, capillary water temp, Arrow II wing, used condition, must sell, \$2,800 ono.
Ph: Richard 07 47418568.

Pegasus Quantum 582 T2-2752, EC, red base with red/white wing, 633 hrs (500 hr service complete), hangered, electric start, 3-blade Arplast prop, 3:1 gearbox, full instrument panel incl. VSI, ICOM A22 radio, Garmin II plus GPS & mount, Navman fuel consumption gauge. Communicate helmets & coms, strobe, gloveboxes, saddlebags, covers, stoneguard, tandem trailer, 18 mths rego, can email photos, \$18,000. Ph: Dave 0417 744266; <birkdaleplumbing@bigpond.com>.

Wanted

Parachute suitable for tandem or single hang glider or ultralight. Ph: 02 99583254.

Parachute suitable for single or tandem hang glider or BRS & an old floater or spare parts.
Ph: 02 99587311.

Trike & wing wanted. Any cond. from project/rebuild to nearly new. Would consider buying trike/wing separately. Cash waiting. Ph: John 0438 302033; <fly77@bigpond.com>.

Other

Free: Hang glider & harness, ex-Moyes competition, 15 yrs old, suitable for parts.
Ph: 02 69471457 (h).

WINDWERKS

SPORT WINDSOCKS: Portable windsocks/self standing models available. Easy set-up in two minutes. Sizes range from 90cm-3.5m. Pivot kits available for permanent mounting. Contact WINDWERKS for a fact sheet. Ph: 03 63523429; fax 03 63523829; <keastman@tassie.net.au>.
December 2001

Australian Paragliding Centre

Bargain Secondhand Pre-loved Equipment
For the following equipment contact Australian Paragliding Centre at [www.australianparaglid ing.com], email <fly@australianparagliding.com> or phone 02 6226 8400.
Nova X large tandem, 4 hrs only, \$3,600 (new over \$5,000). Nova X Ray 22 DHV2, 75-95kg, only 50 hrs, \$2,000. Nova Argon 26C DHV 2-3, 95-125kg, as new only 10 hrs, \$3,000. Pro-Design Target Demo's in excellent condition, 40 (65-90kg) & 42 (85-110kg), special price of \$3,500 (new \$4,800). A range of secondhand Sup-Air & Pro-Design harnesses from only \$600. Pro-Design Eole beginner gliders in excellent condition in all sizes from \$3,000 with a harness. Edel Hero harness, as new at only \$300.

High Adventure Airpark

For the following items contact Lee Scott on 1800 063 648 or email: <leescott@highadventure.com.au> or see [www.highadventure.com.au].
Airborne Microlight 582 WC Wizard wing, full instruments & full covers, always hangered, never been broken down, has aerotow system & 4-blade Brolga prop. Will sell with a license for \$28,000 or \$26,000 without license. Worth over \$32,000 new & has 95 original hrs.
Payout Winches: Made for HG & PG; robust, reliable & with an automatic line layer, perfect for individual or club from \$3,200. See our web site on [www.highadventure.com.au/Winches.html].
Flying Suits: We have the new Firebird flying suits for HG & PG, made from the latest new age material, Porotex. Has a nice soft feeling making movement easy & comfortable in flight, water resistant & breathes without losing body heat. Suits from \$250-\$350.
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FUN Demos: Save \$\$\$ on our Funs with as little as 10-15 hours flight time on them. Give us a call.
Aerotow & Winch Tow Endorsements: Contact us for our schedules.
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Sting 2 154 XC & Sting 154 XC: Sting 2 in excellent cond \$3,100, & Sting XC \$1900 in good cond.
Moyes Xtreme Harness suit 5'10", sell for \$500.
Advertise your flight gear for free online on [www.highadventure.com.au/skyshop]. Find where everyone is selling their gear from. Pilots contact you directly, no commissions or fees attached - it's FREE!

Skylimit Byron Bay

For the following equipment phone Joe Scott on 02 66843711.
Must sell! Save \$6,000 off new price: Edge X 503 Wizard, electric start instrument binacle, Communicate coms & VHF radio. Only 33 hrs from new, \$22,600 ono with 5 hrs training at Byron Bay. SX4, great condition, \$2,000 ono. SX5, fantastic performer, spare CSX5 sail, \$2,000 ono. Exxtacy, out of this world performance & handling, \$8,500 ono. Buzz 154, stunning first glider, \$1,200.
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HGFA Addresses



Any change of club details MUST be sent to the HGFA office. The information will be updated in Skysailor only after notification has been received by the HGFA office.



All correspondence, including changes of address, membership renewals, short term memberships, rating forms and other administrative matters should be sent to:

Hang Gliding Federation of Australia

HGFA Office Manager: Margaret Crane
Administration: Colleen Lacrosse & Karina Thatcher
PO Box 558, Tumut NSW 2720,
ph: 02 69472888, fax: 02 69474328,
<office@hgfa.asn.au>

Board Members:

Rohan Grant (President, VP & ASAC Delegate) 188 Bathurst St, Hobart TAS 7000, 03 62243598, <President@hgfa.asn.au>.

Michael Zupanc (Vice-President & CIVL Delegate) 6 Sibyl St, Southport QLD 4215, 07 55325895 (h), 0408 662328, <Vice_president@hgfa.asn.au>.

John Reynoldson (Treasurer) 68 Teddington St, Hampton VIC 3188, 03 95970527, fax: 03 95981302, <John_Reynoldson@hgfa.asn.au>.

Rohan Holtkamp

RMB 236B Western Highway, Trawalla VIC 3373, ph/fax: 03 53492845, 0409 678734, <Rohan_Holtkamp@hgfa.asn.au>.

Keith Lush

5 Fortune St, South Perth WA 6151, 08 9367 3479, 0418 534434, <keith.lush@hds.com>.

Bill Moyes

173 Bronte St, Waverley NSW 2024, 02 93875114, fax: 02 93693342, <Bill_Moyes@hgfa.asn.au>.

Philip Pritchard

PO Box 734, Beenleigh QLD 4207, 0418 761193, <Phil_Pritchard@hgfa.asn.au>.

Brian Webb

PO Box 238, Bright VIC 3741, 0417 530972, <alpcamp@netc.net.au>.

Rob Woodward

38 Addison Rd, Black Forest SA 5035, 08 8232 5405, 0408 808436, fax: 08 82237345, <rob_woodward@ultimatempositioning.com.au>.

General Manager & Operations Manager: Craig Worth

PO Box 71, Hallidays Point NSW 2430, ph/fax: 02 65592713, 0418 657419, <general_manager@hgfa.asn.au>.

Microflight Public Relations:

Paul Haines ph/fax: 02 42941031.

For information about site ratings, sites and other local matters, contact the appropriate state associations region or club.

States & Regions

ACTHGPA

PO Box 3496, Manuka ACT 2603; Pres: Steve Foggett 0417 313 589 <sfoggett@dc.com>; Sec: Mark Elston 0428 480820 <Mark.Elston@defence.gov.au>; Trs: Tony Davidson 0500 883322 <td@silktel.com>; Committee Members: John Chapman, Michael Porter, Matt Davey, Brett Robinson; SSO Peter Bowyer 0412 486114. Meetings: 1st Tue/month 7:30pm, Yamba Sports Club, Phillip.

Hang Gliding Association of WA

PO Box 82, South Perth WA 6151; <hang_glidering_association_wa@hotmail.com>. Admin: Richard Williams 08 92943962, 0427 057961, <rickandalice@hotmail.com>; HG Rep: Mike Thorn/Sam Blight 08 92988174, 0409 901500 & Steve Hoefs/Dave Wellington 08 93977250; PG Rep: Mike Duffy 08 93823036, 0417 923741, Dave Humphrey 08 95745440, 0418 954176; Trike/HGFA Rep: Keith Lush 08 93673479 (h), 08 93679066 (w).

NSW Hang Gliding Association

Sec: Steve Hocking, 19 Gladswood Gardens, Double Bay NSW 2028, ph/fax: 02 93274025, <nswhga@s054.aone.net.au>.

North Queensland HG Association

12 Van Eldik Ave, Andergrove QLD 4740; Pres: Graeme Beplate 07 49552913, fax: 07 49555122, <sitework@mackay.net.au>; Sec: Ron Huxhagen 07 49552913.

South Australian HG Association

1 Sturt St, Adelaide SA 5000, ph: 08 8410 1391, fax: 08 82117115; Pres: Stuart McClure 08 82973452, <stuart.mcclure@adl.clw.csiro.au>; Sec: Mark Tyminski 08 83774570 (h), 08 84076621 (w), <marknjan@senet.com.au>; Trs: Rob Woodward 08 82977532, <benchpos@dove.net.au>.

Tasmanian Hang Gliding Association

PO Box 27, Rosny Park TAS 7018, [www.thga.net]. Pres: Anthony Mountain 0407 299011; Sec/Trs: Warren Judges 0419 175170.

Victorian HG and PG Association

PO Box 400, Prahran VIC 3181, [www.vhpa.org.au]. Pres: Geoff Tozer 03 97583202 (h), <gtozer@bigpond.com>; Sec: Adam Dixon 03 96895739 (h), <dna@smartchat.com.au>; SSO: Rob Van Der Klooster 03 52223019 (h). Site weatherboxes: Three Sisters 0409 864 700, Buckland Ridge 0407 356295, Mt Buffalo 03 57501515, Ben More 0417 112062.

Clubs

NEW SOUTH WALES

Blue Mountains Hang Gliding Club Inc

Pres: Peter Burkitt 0418 435204, <artisan@sia.net.au>; Sec: Jim Grant 02 47588625; Trs: Allan Bush 02 47738037, <fairallan@pnc.com.au>; SSO: Dave Petrie 02 47871610, <petrie@lisp.com.au>; Allan Bush 02 47738037, <fairallan@pnc.com.au>; Newsletter: Alan Bond 02 98995351, <skybond@primus.com.au>; Site Development Officers: Paul Hunt 02 47881409, <phunt@macquarie.com.au> & Mark Madden 02 63612367. Meetings: 3rd Wed/month, 7:30pm, Blue CattleDog Tavern, Mamre Rd, St Clair.

Byron Bay Hang Gliding Club Inc

Pres: Andrew Polidano 0414 843510, <andrew@byron-bay.com>; V-Pres: Brett Cook 02 66876907; Sec: Brian Rushton 0427 615950, <byronair@optusnet.com>; Trs: Brian Braby 02 66280983, <bbraby10@scu.edu.au>; SSO (HG): Brian Rushton 0427 615950; SSO (PG): Lindsay Wooten 02 66854551, 0427 210993. Meetings: 1st Wed/month 7pm, Byron Golf Club.

Hunter Skysailors

Pres: John Clifford 0438 302033; Sec: Neil Bright 0412 689067.

Illawarra Hang Gliding Club Inc

Pres: Mark Ryan 0412 424760; Sec: Tim Causer 02 42948110, <timcau@ozemail.com.au>; SSO: James Nathaniel 02 4262 7677, 0413 737077.

Kosciusko Alpine Paragliding Club

Web page [www.homestead.com/kapc]; Pres: James Ryrie 02 62359120, <rymicalago@netspeed.com.au>; V-Pres: Nigel Hack 02 64576452, <freexoz@snowy.net.au>; Sec: Charles Palmer 02 62925664, <palmerc@charlespalmer.net>; SSO: Heinz Gloor 02 64567171.

Manilla SkySailors Club Inc

[www.mss.org.au]. Pres: Brian Shepherd 02 67852182; Sec/Trs: Felix Burkhard 02 67751050, <felixb@xyon.com.au>; SSO (HG): Patrick Lenders 02 67783484; SSO (PG): Godfrey Wenness 02 67856545, Trikes: Willi Ewig 02 67697771.

Mid North Coast Hang Gliding Association

Pres: Lee Scott 02 65565265; SSO: Dale Davis 02 65597716.

Newcastle Hang Gliding Club

PO Box 64 Broadmeadow NSW 2292; Pres: Mick Hurley <fly176@hotmail.com>, 02 49432903; Sec: Adam Donaldson <adnsnic@rivernet.com.au>, 02 49472466; Trs: Brad Cootes <hugest@bigpond.com>, 02 49521428; SSO: Inland – Al Gies 02

49430674 & John O'Donohue 02 49549084, Coastal – Scott Alder 02 49514581 & Jason Turner 0419 997196. Meetings: Last Wed/month, Souths Leagues Club.

North Beaches Hang Gliding Club Inc

Pres: Mark Robertson 0427 702864, <Robbos71@hotmail.com>; V-Pres: Angus Evenden 02 99978777, 0416 205025, <creation@tpg.com.au>; Sec: Nils Vesk 02 99382963; Trs: Jim Gaal 02 99977704, 0414 799822, <jimg@com.au>; SSO: Mike Eggleton 02 94517127, Forrest Park 02 94502674, Glenn Salmon 02 99180091. Meetings: 1st Tue/month, 7pm, Mona Vale Bowling Club.

Stanwell Park HG and PG Club

PO Box 258 Helensburgh NSW 2508; Pres: Rob Lepre 02 42948694, <pepielepre@one.net.au>; Sec: Angela Johnson 02 42683748; Trs: Joe Fussell 02 42943942; Events Co-ord: Jules Sanderson 02 42943092; Site Manager: Steve Pick 02 42944195; SSO: Jamie Cannon 0410 686232, Steve Pick (PG) 02 42943072.

QUEENSLAND

Cairns Hang Gliding Club

Pres: Bernie Zwalen 07 40655593; V-Pres: Ken Wright 07 40937028; Sec: Lance Keough 07 40912117, 31 Holm St, Atherton QLD 4883; Trs: Nev Akers 07 40532586.

Canungra Hang Gliding Club Inc

PO Box 41, Canungra QLD 4275; [www.triptera.com.au/canungra]. Pres: Jon Durand <durand@ausinfo.com.au>, 07 55333596; V-Pres: John Ripley <rip_ripley@hotmail.com>; 07 32898275, 0417 507906; Sec: John Tree <jst@winshop.com.au>, 07 55342559, 0417 607191; Trs: Shirley Lake <chgcrtreas@mac.com>, 07 55434047; General Executive Member: Greg Hollands <greg.s.hollands@transport.qld.gov.au>, 07 32534239 (w), 07 38448566 (h); Newsletter Editor: Ros Taber <rostab@aol.com>, 07 33490393, 60 Wanda Rd, Mt Gravatt QLD 4122; SSO: Andrew Horchner <aefactor@gil.com.au>, 0412 807516.

Central Queensland Skyriders Inc

PO Box 1428 Yeppoon QLD 4703; Pres: Bob Pizzey 07 49387607; Sec: Grayden Long 07 49397701; SSO: Geoff Craig 07 49923137; Paul Barry 07 49922865.

Conondale XC Flyers Club Inc

13 Cottman St, Buderim QLD 4556; Pres: Bruce Crerar 07 54451897; Sec: Graham Sutherland 07 54935882; Trs: Annie Crerar 07 54451897; SSO (HG): John Blaine 07 54948779; SSO (PG): Graham Sutherland 07 54935882.

Dalby Hang Gliding Club Inc

16 Lunga St, Carina QLD 4152; Pres: Bob Keen 07 46639770; Sec: Damien Gates (SSO) 07 39017401, 0417 766356, <texdoc@bigpond.com>; Trs: Jason Reid 07 33941129.

South East Queensland Hang Gliding Club

Pres: Peter Beard 07 33487150, <Peter_Beard@msn.com.au>

Sunshine Coast Hang Gliding Club

PO Box 227, Rainbow Beach QLD 4581; <lintheair@ozemail.com.au>. Pres: Phil Lewis 0412 739302; Sec/SSO (PG): Jean-Luc Lejaille 0418 754157; Trs: Michael Powell 07 5442 5568; SSO (HG): David Cookman 07 54498573.

Townsville Hang Gliding Association Inc

Pres: Clint Smith 07 47747650; Sec: David McMahon, 07 4772 3858, PO Box 103, James Cook University, Townsville QLD 4811; Trs: Graeme Beplate 07 47732913; SSO: Graham Etherton 0427 831797.

Whitsundays Hang Gliding Club

Pres: David Nash 07 49531817; Sec: Ron Huxhagen 07 49552913, fax: 07 49555122, <sitework@mackay.net.au>; PG contact: Graeme Lee 07 49546726, <gdsrlee@hotmail.com>.

VICTORIA

Dynasoarers Hang Gliding Club

Pres: Darren Brown 03 5222 8625; Sec: Tony Hughes 03 52437661; Trs: Greg Holt; SSO: Ted Remeka; Rob Van Der Klooster 03 5222

3019, <hrt@deakin.edu.au>; Meetings: 1st Fri/month, venue web site [vhpa.org.au/dyna].

Melbourne Hang Gliding Club Inc

Formerly Eastern HG Club, [www.vhpa.org.au/melbourne/], <melbourne@vhpa.org.au>. Pres: Andrew Medew 0413 433537; SSO: Geoff Tozer 03 97583250, Kevin Grosser 0419 022225. Meetings: 3rd Wed/month at 6:30pm at the Palace Hotel, 893 Burke Rd, Camberwell (opposite railway station).

North East Victoria Hang Gliding Club Inc

[www.home.aone.net.au/gilbert/nevch.htm] Pres: Bill Graham 03 57501828; Sec: Sarah Nicholas ph/fax 03 57551040; Trs: Gavin Hanlon; SSO: Karl Texler. Meetings: 1st Thu/month, Alpine Hotel, Bright.

Sky High Paragliding Club

<skyhigh@vhpa.org.au>; Pres: Geoff Guest <gguest@fox.net.au>; V-Pres: John Styles <jdstyles@hotmail.com>; Sec: Zoltan Toth <fishhead@netspace.net.au>; Trs: Barbara Scott <bscott@iprimus.com.au>; Committee Members: Hakim Menten <hmenten@ozemail.com.au>, Jamie Harrington <jamie@sasprotocol.com.au>, Duncan Caswell <Duncan.Caswell@worley.com.au>, Sharon Ginglell-Kent <gingellk@anz.com>. Meetings: 1st Wed/month 8pm, Retreat Hotel, 226 Nicholson St, Abbotsford.

Southern Cross Paragliding Inc

[http://fly.to/southernmx]; Pres: Gary Clarkson 0419 319948, 34 Rose St, McKinnon VIC 3204. Meetings: Last Wed/month.

Southern Microflight Club

Pres: Mark Howard 03 97511480, 0418 533731, fax 03 97511584; V-Pres: Kel Glare; Sec: Ben De Jong; Trs: Dianne Pierpoint. Meetings: 2nd Thu/month 8pm, various venues.

Western Victorian Hang Gliding Club

Pres: Stephen Norman 03 98536554, <ursula@starnet.com.au>; V-Pres: Glen Bachelor 0419 324730; Sec: Nathan Grieve 03 53673106, 0408 673102; <nathan_grieve@yahoo.com>; Trs: Phillip Campbell 03 53313812, 0419 302850, <campbell@giant.net.au>; SSO: Rohan Holtkamp 03 5349 2845. Meetings: Last Sat/month, The Golden Age Hotel, Beaufort.

WESTERN AUSTRALIA

Albany Hang Gliding Club

Pres & SSO: Simon Shuttleworth 0407 950536; Sec: John Middleweek 0417 412710, 08 9841 2096, fax: 08 98412096.

Cloudbase Paragliding Club Inc

Club message bank 08 94875253; [www.cygnum.uwa.edu.au/~madmike/paraglid.html]; <cloudbase@paragliding.org>; Pres: Dave Humphrey 08 95745440, 0418 954176, <paradive@avon.net.au>; Sec: Michael Duffy 08 93823036, 0417 923741 <madmike@cygnum.uwa.edu.au>. Meetings: Last Wed/month 8pm, Sportsmans Association, Woodsome, Mt Lawley.

Hill Flyers Club WA

Pres/SSO: Rick Williams 08 92943962, 0427 057961, <rickandalice@hotmail.com>; Sec/Trs: Dave Longman 08 93859469; Committee Member: Mike Thorn 08 92988174; 0409 901500. Meetings: Last Wed/month, 7:30pm, "Cascades" Bistro and Function Centre, 231 Guilford Rd, Maylands.

South West Microflight Club

Pres: Brian Watts 0407 552362; V-Pres: Don Wilson 08 97641007; Sec: Paul Coffey 08 97251161; CFI: Brendan Watts 0408 949004.

Western Soarers Hang Gliding Club

PO Box 483, Mt Hawthorn WA 6915, [www.iinet.net.au/~navi]; Pres: Phil Wainwright <pwainwright@iqpc.net.au>; V-Pres: Daryl Speight 08 93568195, <Darryl.Speight@kbjv.com>; Sec: Geoff Smith 08 9223 2323, <geoff.smith@jhg.com.au>; Trs: Graeme Sharp 08 9445 7044, <GSharp@stothoore.com.au>; SSO: Mark Stokoe 08 9581 3572; Events & Promotion: Krista Gaunt 08 9348 4246, <Krista.Gaunt@woodside.com.au>. Meetings: 1st Wed/month 7:30pm, The Irish Club, 61 Townshend Rd, Subiaco.

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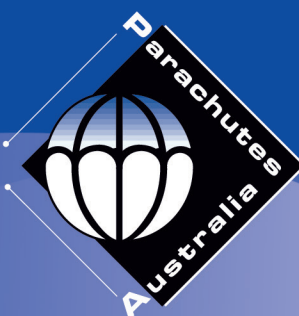
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